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REPORT OF TWO CASES OF HYDROPHOBIA, WITH POST-MORTEM EXAMINATION OF ONE CASE.

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Cases of hydrophobia are fortunately so very rare, and the pathology of the disease so little understood, that I do not think any apology is necessary in offering the following contribution to the subject. The first case, alone, fell under my personal observation. A brief synopsis of the second is presented, which, while very imperfect, is yet believed to serve the purpose of giving a clinical picture in outline.

Case 1.—On June 27, 1891, I was called in consultation with Dr. N. R. W., of Coesse, Ind., to visit Mr. R. D., æt. 76.

The patient, a well-to-do farmer, had sent for Dr. Wenger on the evening of June 25, because of a feeling of oppression in the chest which had troubled him all day.

From Dr. W. and the family I obtained the following history:

About six weeks previously he had been bitten by a pet dog, which had been around the farm house for a long time, and had always been quiet and peaceable in its manner. The patient had observed that the dog did not appear well, and suspected that some some one had poisoned him. The dog's appetite had not appeared good, and the old gentleman was engaged in coaxing him to drink some milk. While engaged in this kindly attention, the dog, without the slightest provocation, suddenly snapped at him, biting him quite severely on the back of the right hand. The wound was a couple of inches in length, and situated over the ulner side of the dorsum of the hand, near the metacarpo phalangeal articulation, and bled profusely. He went into the house and bound it up tightly, thus stopping the hæmorrhage in a very short time. About half an hour afterwards, upon going into the yard he noticed the dog standing there, gazing intently and vacantly in the distance. While watching him he started off into an adjoining field, and so far as can be ascertained, was never seen by any one afterwards. No suspicion was aroused by the peculiar behavior of the dog, and the wound healed readily in a few days and was forgotton.

He seemed as well as usual for a couple of weeks, but during the remaining interval of four weeks, was troubled with a slight pain, or rather distress, in his head. This distress in his head seemed rather in the nature of a fulness, but was not regarded as of sufficient importance to require the advice of a physician. It may possibly, however, have been of considerable severity, as the family were noticeable for not engaging a physician unless the illness was unusually severe.

No other symptoms whatever could be recalled by the patient or his friends, until the evening of June 22, five days before I was called. He then observed a weakness of the right hand, which he attributed to over use, as he had been plowing corn during the day and thought he had used it too much. This was at once shown to be improbable by the fact that in plowing corn he said that he used both hands practically in the same manner, so that one hand would be as likely to tire as the other. The patient was furthermore right-handed, which would give increased strength to this arm from greater use, and make it still more improbable that this weakness was due to fatigue.

It was also associated with some pain in the right hand, arm and shoulder, all of which increased until the 25th inst., when he was unable to use the arm at all. From this maximum of paresis the arm partially recovered until, at the time of my visit, he had considerable use of it, although distinctly paretic.

During the day of June 25, he observed a feeling of oppression in the chest, as though it were an effort for him to get his breath. This became so marked by evening that it led him, as above stated, to send for Dr. W. Upon his arrival he found the patient with a temperature of 100°, pulse 92, with some nausea and occasional bilious vomiting; these were the only symptoms, besides the paresis of the right arm and the oppression of the chest, as above noted. The nature of the case was, of course, at this time not suspected, as there were no symptoms which would suggest hydrophobia, and the knowledge of the dog bite was not then in his possession. He prescribed some medicine, exactly what I do not know, which was given in teaspoonful doses at intervals of a couple of hours. The patient took this medicine regularly until 2 o'clock in the morning, when the difficulty in respiration was noticed for the first time to be increased by the act of deglutition. From this moment the pain caused by swallowing was so great that practically no food or drink was taken.

When I saw him his temperature was 97.4° and his pulse 100; tongue dry and slightly coated; the knee jerk normal; no wrist reflex; pupillary reflexes for light and accommodation, both normal; bladder and rectal reflexes normal. In the interval between Dr. W.'s first visit in the evening of June 25, and my visit at 2 P.M. on June 27, there had been no material change in the patient's condition. In the intervals between the attempts to swallow, he was comparatively comfortable, and at the time of my visit seemed entirely rational, and in fact, did not impress

one as being very ill, as he sat down upon the edge of his couch and walked around the house from one room to the other with perfect ease. There was in fact no peculiarity in his gait or manner or physiognomy, excepting a slight appearance of anxiety caused by the persistent feeling of oppression already referred to. He was perfectly rational and composed in his manner and a casual observer might have talked with him for half an hour without noticing anything whatever the matter with him, mentally or physically. After completing the physical examination and getting a full history of the case, a glass of water was procured and carried towards him where he was sitting, for the purpose of producing the spasm in order that I might observe its character. As Dr. W. entered the room with the glass of water and approached the patient I watched him closely and noticed an increasing expression of dread settling over his face, which, by the time the glass was reached out for him to take, amounted to a look of extreme terror. He pushed it away with his hand, saying he could not possibly take it then, but would in a few minutes if there was not so much of it. All of the water was then thrown out excepting two or three teaspoonfuls, which was handed to him, and which he threw with a quick, spasmodic effort into his mouth and quickly handed the glass back to the physician. He then made an attempt to swallow, which was unsuccessful, but which induced the most violent respiratory spasm that I have ever seen. He sprang to his feet in great agony and ran back and forth through the room, two or three times, vainly trying to swallow the water; finally after about one minute's time he sat down saying that he had at last succeeded in swallowing it, and in a few minutes was as calm as before, although looking somewhat more anxious. I advised injections of morphia, combined with rectal nutrient injections and ice over the back of the head and neck, for the purpose of lowering the reflex irritability of the medulla, to be followed by curare injections as soon as the curare could be obtained. We left the house at three o'clock, and as it was necessary to send some distance for the purpose of procuring what was needed to carry out the treatment, he was not seen again for six hours. There was no material change reported by the attendants in his condition, until about 8:30 that evening, excepting that the respiratory spasm became more frequent and more severe, occurring independently of the act of deglutition. About this time he became maniacal and left the house when not closely watched, and was found shortly afterwards in the garden in a very vicious state, with stones in his hands, which he threatened to throw, and finally did throw at those who were trying to capture him. He then ran out into the road and started towards town. After a short chase one of the party overtook him and pushed him down, running past him at the same time. The patient arose very quickly and started in pursuit of his pursuers, who, respecting his threats of using knife and stones, kept a safe distance in advance until after running about half a mile he fell, fully exhausted; he was secured with considerable difficulty, by tying him with ropes, and was then conveyed back to his home. The respiratory spasms were almost incessant, although he was well narcotized with morphine, until 8 o'clock, A.M., June 28. There was then an interval of two hours during which he was comfortable and rational. He was then induced to take a couple of tablespoonfuls of gruel, but it immediately excited the spasms which continued with unabated severity until 7 P.M. the same day, when he died. Owing to lack of both telegraphic and railroad facilities on the day of the 28th, which happened to be Sunday, I did not see the patient a second time. At the request of Dr. W., I went to Coesse, and made a post-mortem examination June 29, twenty-four hours after death, of which the following are the notes:

Body fairly well nourished. Rigor mortis well marked, limbs very stiff. Numerous ecchymotic spots, size of quarter to half a dollar, located on arms. Extensive hypostatic congestion of skin over dependent (dorsal) portion of body and lower extremities. The skin over this area was almost purple.

Calvarium of ordinary thickness and consistence. Dural adhesion to vault of cranial arch remarkably firm. Could scarcely remove the skull cap at all. By throwing my entire weight upon it, and pulling as hard as I could for a considerable time, the adhesions slowly gave way, and the skull cap was removed. In removing it the superior longitudinal sinus was torn open and two or three ounces of *fluid* venous blood was poured out. The basal dural adhesions were likewise exceptionally firm and the basal cortex was considerably lacerated in the process of removal.

In removing the brain the cord was severed as low as possible, and I then proceeded to remove the spinal cord, by cutting out the spinous processes with their laminæ as far down as the 8th or 9th dorsal vertebra. The remainder of the cord was not removed because of exhaustion, as I had been compelled to do the entire work myself, and was much fatigued before commencing.

The external surface of the dura mater was, of course, greatly roughened, corresponding to its extensive adhesion to the cranium. Upon removing the dura, the pia mater presented a remarkably normal appearance. There was no trace of congestion. Upon removing the spinal dura the pia mater was found for the most part normal. Along the lower half of the dorsal cord, half a dozen linear ecchymotic spots were found, from a quarter to half an inch long.

Abdomen. Great distension of mesenteric veins. Peritoneum generally injected. Intestines were normal excepting a marked vascular injection. The kidneys were both somewhat atrophied, the right more than the left. Capsules not adherent. Intense venous congestion of cortex, which was almost black. Both renal pelves contained a quantity of frothy fluid. On the convex surface of right kidney was found a small cyst, half as large as a pea, which was filled with a dark fluid which did not look like blood, and which left upon the surface of the kidney after it (the cyst) had been opened a pit or depression nearly as large as the external projection of the cyst; two or three smaller ones on the other kidney.

The spleen was intensely congested, and of course correspondingly enlarged. It was also remarkably fragile, breaking easily under the slightest force. In reaching under the margin of the abdominal wall, I had evidently lacerated it extensively (although no unusual force was exerted) for the first view which I obtained of it was strikingly like that of a large dark blood clot. My first impression was that there had been an internal hæmorrhage; and I was only unde-

ceived after I had removed the spleen and found that what appeared to be a blood clot was really its lacerated under surface.

The posterior portions of both lungs were very dark with hypostatic congestion. Numerous small hæmorrhagic infarctions were found scattered through both lungs.

Heart normal in size and consistence. Right cavity well filled with semifluid blood, left cavity entirely empty.

The diagnosis made on June 27th by myself, and concurred in by Dr. W., was that of hydrophobia, caused by the bite of a dog some weeks previously. To venture upon the diagnosis of hydrophobia in a community where a well authenticated case had never been observed either in animals or man, so far as I could ascertain by the most careful inquiry, was, it must be conceded, a rather bold conclusion. But the symptoms, while not absolutely unmistakable in their import, were yet characteristic.

It would be quite possible, of course, for spasm of the respiratory passages to occur synchronously with, or as a result of the act of deglutition, independently of rabies. And this, so far as the clinical picture presented at the moment of my visit is concerned, was the only conspicuous feature. In the absence of any history, therefore, a positive diagnosis at that time from an examination of the patient alone would have been impossible.

But in addition to the characteristic symptoms present there was a definite history of having been bitten by a dog that was ill at the time, and which, within an hour after inflicting the bite, disappeared under circumstances which created a strong suspicion of rabies. Here again the mere circumstance of a dog biting his master, towards whom he had theretofore always manifested the kindest feeling, and then suddenly disappearing would only create a suspicion, but would not constitute a proof of rabies in the dog. But when these two circumstances were taken together. the one following the other in the proper time to form the incubative period, they constituted very strong if not conclusive proof of the existence of rabies in both cases.

At this stage of the disease the question of lyssophobia had to be considered. It was excluded by the fact that the patient attached no importance whatever to the bite, from the moment that it had healed up, onward. So far as could be judged he had no thought or conception of hydrophobia. When the circumstances of the dog bite were recalled to his memory he "pooh poohed" the idea of its having any significance. He would strike his breast with his closed fist saying that his trouble was all there, and that there was nothing the matter with his hand. The dread of hydrophobia, acting upon his nervous system through the psychical sphere, could therefore have had nothing whatever to do with the case, and lyssophobia was thus positively excluded.

But whatever doubt there might have been was dispelled by the tragical denouement of the case. The existence of ordinary mania was positively excluded by the rapidly progressive nature of the case. To quote the words, or at least the idea, of Gowers: "No case of insanity ever becomes dangerous to life in a couple of days." Thus the exclusion of the ordinary forms of insanity gave increased strength to the diagnosis of its hydrophobic nature. Finally the post-mortem examination sustained the diagnosis by the negative findings in the nervous system, with the exception of a few ecchymotic spots upon the pia of the dorsal cord. The changes described are principally those of asphyxia with its attendent engorgements. It is worthy of note that the pia mater of the brain was quite normal in appearance, and showed no post-mortem signs of the congestion which was manifested in other organs, and which the mania would have led us to expect most of all here.

The temporary paresis of the right arm which, after existing two or three days, reached its maximum on the day of the first manifestation of rabid symptoms, and from which there was partial recovery during the remaining two days of his life, was evidently peripheral in its origin. This is corroborated by the pain of which the patient complained in the extremity, indicating the involvement of nerve trunks in which both sensory and motor fibres were blended. A dissection of the brachial plexus, and its branches, had time and circumstances permitted, would probably have revealed some grade of neuritis or intense neural congestion such as have been described in the vagus and other nerves by different observers.

Some injection experiments were undertaken in rabbits, with the assistance of my friend and former pupil, Dr. C. M. D. Magnus. I procured a small quantity of saliva at the time of my visit, when, it should have been stated, the flow of saliva, previously excessive, had almost ceased. There proved to be only ten minims, which was injected by Dr. Magnus with antiseptic precautions in the back of the neck instead of arachnoid space of a rabbit, on June 29th, 1891. The rabbit remained perfectly well, playing and eating as usual, and was last seen in this condition on the afternoon of July 8th. On the morning of July 9th, about fifteen hours after having last been seen alive and well, it was found dead, in a position of extreme opisthotonos, with the limbs rigidly extended, as though it had died not of paralysis but in spasm. It was my intention to have further injections made with the spinal cord of this rabbit, but certain circumstances caused a delay of 48 hours, and when the spinal cord and cranial cavity were opened, although it was in a cool cellar, both the cord and brain were converted into a putrid fluid, which would of course have killed by septic poisoning long before rabid symptoms could have ensued. Further experiments were therefore abandoned.

Case 2.—This case recently occurred near Pierceton, Ind., some twenty miles from the case that I saw, and I am indebted to Dr. C. R. Long for a very careful and painstaking account of the case, of which the following is an abstract.

Dr. Long was called to see his patient, a farmer about 55 years old, on July 7th, 1891. The patient had been suffering for several years from chronic hepatic trouble, and regarded this illness as one of its consequences or rather exacerbations. His temperature was 100, pulse 95, weak and very nervous; difficulty in swallowing and labored respiration. Condition on July 8th unchanged, excepting increased difficulty in swallowing. When approached with a spoonful of medicine, the doctor informs me that he kept his eyes shut, as the sight of anything for him to swallow caused the feeling of cramp in the throat and chest. All history of dog bite was denied until, after much questioning, it was ascertained that in April, 1891, he had been bitten on the hand by a pet dog who had strayed away to a neighbor's house and

been brought home by one of the neighbor's children. On the same day of the bite the dog was found engaged in his favorite amusement of chasing chickens, and upon scolding him for this, and throwing some missile at him, he started off through the fields, and was not seen afterwards.

On the morning of July 9th, his condition was unchanged until 11 A.M., when he had a slight convulsion and twenty minutes later a harder one, shortly after which time he eluded his watchers and ran to the woods, wandering about a mile and a half and hiding in a dense tamerack swamp, where he was finally discovered, terribly lacerated with briars, etc., begging his friends to kill him. He was then narcotized with injections of morphine, but two hours later had another convulsion in which his attendants say that "he frothed at the mouth and snapped his jaws together, but made no effort to bite or injure any one." Dr. Long unfortunately saw none of these convulsions. Three or four hours later the convulsions recurred and continued to recur frequently until 6 A.M., July 10th, when he died. Dr. Long was unable to obtain an autopsy.

Human rabies in this country is almost invariably contracted from dogs. Now, if rabies may continually exist among animals liable to communicate the disease to dogs, then the constant presence of unmuzzled dogs on our streets, in our yards, in our houses, constitutes a standing danger which may at any time produce disastrous consequences upon human life. This danger can be averted, and human rabies practically stamped out of existence by either annihilating dogs or keeping them muzzled.

One cannot help reflecting upon the significant and menacing fact that a case of hydrophobia can arise in a community like a clap of thunder out of a clear sky. Whence came it? Why do not more cases occur? How soon will some rabid animal, coming from nobody knows where, and going to nobody knows whither, signalize its brief career by leaving behind many cases such as the one which it has been my misfortune to be able to record? As above indicated, there has been no well authenticated case of rabies observed within the memory of anyone who has seen fit to speak upon the subject. May it not be that the disease has been propagated and kept in existence by some of the wild species of our indigenous fauna; such as the rabbit, skunk, squirrel, woodchuck, etc., and by them occasionally transmitted to dogs? These animals would not bite the dog, who is their superior and hereditary foe, except in self defence when attacked by him. This would only occur at rare intervals, and if we may judge by the statistics of human subjects bitten by animals which are known to be rabid, only a comparatively small percentage of those dogs bitten by rabid animals would contract rabies. Again may there not be many more cases of hydrophobia among dogs than is commonly supposed?

It is impossible to tell who, or how soon will be the next victim of a disease which has in its ensemble no counterpart of terror in the entire nosological list. Is it not time that something should be done? If it is too much trouble to keep the dogs muzzled, then dispense with the dogs.

Minimum doses of strychnia act well in nocturnal incontinence of urine.

A CASE OF COMPLICATED LABOR.

BY J. F. JENKINS, M. D.,
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Mrs. G., aged 21 years, a pripara, had suffered some inconvenience, as she stated, on account of her limbs being swollen, but otherwise was in good health. My first visit to the patient was about forty-eight hours previous to labor; the membranes had ruptured previously while the woman was about her work, and a large quantity of water escaped per vagina, although it was not preceded or followed by pain. The patient did not complain of headache, nor were there any nervous symptoms present, yet the face and limbs were œdematous, and would pit upon pressure, which was ascertained from examination of the urine to originate from nephritis. An examination per vagina found the cervix dilated to the size of a ten-cent piece. I left the patient, after instructing the attendant that whenever a change should take place in the condition of the woman to immediately inform me. The following morning I received a summons to see the patient, but upon my arrival found no change. The next morning I again received a message to visit the patient, and when I arrived, was informed that she had a convulsion a few minutes before. The attendant stated that she had a few labor pains, but that they were not severe. A vaginal examination found the os dilated to the size of a silver dollar, and a slightly fluctuating tumor presenting.

The woman had a few labor pains when under the influence of chloroform, and was again seized with a violent convulsion, which was prolonged for some time. Remaining in a comatose condition, she was placed in position, and after some difficulty the forceps were applied, and I succeeded in delivering the breech, with a large tumor attached, to its surface; or, in other words, I was successful in delivering the tumor with the child attached to it. The forceps slipped from their grasp, but they were readily applied, and the woman rapidly delivered of a viable female child, which was immediately separated from its placental attachment.

Profuse hæmorrhage from uterine inertia immediately followed the expulsion of the child, and a teaspoonful of Squibb's fluid extract of ergot was ordered to be given by the mouth, but the patient had not sufficiently recovered from the convulsions to swallow the medicine. Upon passing the hand into the uterus it was found that the placenta was attached to its walls; the attachment was carefully separated by the finger, and the placenta removed, while the left hand grasped the uterus, making firm but gentle pressure in order to induce contraction. The foot of the bed was immediately raised, and as soon as possible ergot was administered hypodermically. Repeated hypodermic injections of ergot, together with gentle kneading of the uterus, eventually succeeded in bringing about permanent contraction and controlling the alarming hæmorrhage, but not until the patient was almost pulseless at the wrist. Hypodermic injections of brandy were now given, which, after being repeated several times, succeeded in restoring the pulse. From this time forward the patient made a good recovery, without a single unfavorable symptom.

The child lived a few hours, and the following day a post-mortem examination was made, in order to ascertain the nature of the growth. The tumor was oval in

shape, and the skin which covered the greater portion of it resembled that of the body of the child, excepting toward the apex, where it was a light blue color, thickly interspersed with enlarged veins. The tumor measured at its base thirteen inches in circumferance, one inch more than the circumference of the head. Its attachment extended over the buttocks of the child, crowding the anus between the limbs and permanently flexing the limbs at right angles with the body. The tumor was larger than the child's head, and sufficiently firm to withstand the strong traction on the forceps which was required in the delivery of the tumor and the breech of the child. There was no pedicle to the growth, and it was impossible to make out the attachment by a mere inspection. The apex was slightly fluctuating, and upon making an incision into it several ounces of fluid mixed with blood escaped. Carrying the dissection toward the coccyx, it was found that the growth was largely composed of multilocular cysts, containing fat and a gelatinous substance. It was attached to the coccyx and the anterior surface of the sacrum, but there was no communication between the tumor and the spinal canal.

The growth may be classified with the congenital sacro-coccygeal tumors, which frequently grow to a large size, according to a number of well-known authorities. In my experience it was unique, not only on account of its size, but the rare complication of parturition.

CASE OF CHOLOCYSTOTOMY WITH CHOLOLITHOTRITY: DEATH FROM LA GRIPPE ON THE TWENTY-FIRST DAY.

Read before the American Association of Obstetricians and Gynecologists, New York, September 18, 1891.

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I report this case as a contribution to the operative history of gallstones, and that it may be fairly judged. The patient, Miss W., 56 years of age, and of very large frame, was referred to me by my father, Prof. William P. Seymour, for operation, the latter part of February, 1891. The patient, always in good health, and a hardworking woman, began in October, 1890, to have sudden attacks of atrocious pain in the epigastrium. Vomiting sometimes, but not always, accompanied the attacks, which varied from a few minutes to several days duration, with exacerbations. There was considerable tenderness of the epigastrium and liver border during the attacks, and clay-colored stools always followed an attack. At no time was there any jaundice, although the conjunctivæ had a slight yellowish tinge most of the time. The urine contained bile after severe paroxysms of pain. Owing to the very much increased frequency and severity of the attacks, and especially to the rapidly increasing emaciation, anorexia and loss of strength, my father urged operation, and after deliberation, the operation was accepted. The patient was plucky, but very much enfeebled for one who had been so strong. The tissues were flabby, but I could find no trouble with heart or lungs, and as to the liver, the examination was negative, save that deep but gentle pressure over the gall-bladder elicited tenderness. The bowels having been freely moved each of the several days before the operation, and a soap bath given daily, I operated on the 20th of March, with the assistance of my friends, Drs. John W. Morris and George Meredith. Squibb's chloroform was used. The anæsthetic was well borne. I made a vertical incision over the gall-bladder, passing through fully 3½ inches of fat in the lax abdominal walls. The gall-bladder was found immediately beneath the upper extremity of the incision. It was contracted, and contained several stones. Protecting the abdomen with sponges, I first removed a drachm of bile by aspiration, and then opened the fundus between two forceps, and removed with Tait's scoop five stones, the size of small buckshot. Another stone the size of a filbert was felt in the common duct, near the junction of the cystic duct, and I found myself confronted with its removal by excision, crushing or needling. Considering the sloppy belly and the great depth of the stone, it seemed to me that excision with subsequent suture of the duct was far riskier than to crush the stone after Tait's method, by forceps applied to the walls of the duct. I accordingly, after failing to break it up with Tait's forceps introduced through the gall-bladder and cystic duct, grasped the duct and stone with a Keith's hysterectomy forceps, and speedily succeeded, with but moderate pressure, in comminuting the stone. Examination disclosed no injury to the duct, and the belly being clean, after washing out the gall-bladder, I stitched it to the abdominal walls with interrupted silk sutures, introduced a rubber drainage tube into the gall-bladder, and closed the abdominal incision with silkworm gut. The wound was dressed with absorbent cotton, the tube shielded with a rubber dam, and over all a four-tailed flannel bandage was placed. The patient bore the operation well, but two hours later had a terrific paroxysm of colic, due to the passage of the fragments of the stone. For this I was obliged, very much to my regret, to give several large hypodermatics of morphine and atropine. The pain was relieved, but obstinate vomiting came on the next day, and I gave repeated doses of calomel. No food was given by the mouth. As the vomiting continued, Monday, the second day after the operation, I gave several doses of salts, which operated and completely changed things for the better. Bile was found in the passages, and but a small amount in the dressings each day for three days, and then the amount reached its maximum, not to exceed 4 ozs. a day, for five days. From this time it rapidly diminished to a mere trace after the eighth day. The appetite returned, with the entire absence of the previously constant pain, and the patient ate and enjoyed chops, steaks, and other substantial things which for months she had been unable to eat. In short, her condition was excellent, and she expressed herself as delighted with the operation. The tube was removed the sixth day. The temperature, which before the operation had been two or more degrees above normal, never exceeded 101° save once, and became normal at the end of a week. The stitches in the abdominal wound were removed the seventh day, and the patient sat up a little the eighth day. Each day she was gaining, and on the thirteenth day was to have gotten out of bed, but in the morning complained of pain all over her, and a very trying cough. Her temperature was 101.5°, and

the pulse 120. The condition of the wound was excellent, there being perfect union save at the drainage tube opening. The cough increased so in violence that I feared the wound would tear open and the gall-bladder be torn free. The appetite continued good, the bowels moved regularly, and had it not been for the violent cough and bronchitis, the patient would have considered herself well. At this time the "grippe" had become epidemic, and it was evident that the patient had contracted the disease. Although the cough so improved that I felt very much encouraged, yet in the afternoon of the twenty-first day I was called to her, to find her with an attack of œdema of the lungs, and she died in spite of all treatment. The autopsy was made by Drs. Gordinier and J. W. Morris, Drs. Martin, Meredith, Hutchisson, Clipperly and myself being present. The autopsy showed perfect union of the abdominal walls, save at the drainage opening, the adhesion of the gall-bladder intact; the ducts were patent, and there was not the slightest evidence of peritonitis, suppuration or ecchymoses in or about any abdominal organ. The heart was normal, but both lungs were extremely œdematous, the bronchi and bronchioles of a very deep red and swollen, while at both apices were small patches of catarrhal pneumonia. I knew we were threatened with an epidemic of influenza, but I dare not defer the operation, and I hoped to keep all sources of infection at a distance. Now, as to the method of treating these stones in the common duct, I think the condition of the ducts found at the autopsy justifies my choice of Tait's procedure of crushing. While excision and subsequent suture of the duct seems the more rational procedure, in large, fat and flabby bellies the duct is at so great a depth, that the risk of incomplete suture seems to be as great as that of injury to ducts from external pressure; especially as the pressure necessary to comminute an average gallstone is not very great. They can, in some cases, be crushed in the ducts by the fingers used as pincers, as Kocher, of Bern, has successfully done. Yet, as a rule, it is difficult to fix the stone sufficiently with the fingers alone, and with them to apply the necessary force, owing to the incomplete fixation. In my case, I could pass a Tait alligator forceps through the gall-bladder and cystic duct, and endeavored to nibble away portions of the stone, but I did not make satisfactory headway. Had the forceps had a rongeur beak, perhaps I might have nibbled the stone away. Yet, as a rule, the cystic duct will not admit of the ready passage of so large an instrument. In very spare or emaciated subjects, I can readily believe excision and suture of the duct may be a method of election, but that it has any advantage over crushing in fat bellies and deeply situated ducts, I do not believe. The difficulties in the way of an exact suture seem to me greater than the risk of injuring the soft parts by crushing. As to needling, it cannot compete with either crushing or excision, and perhaps would be best limited to stones so large that they cannot be readily grasped by the forceps, either in the gall-bladder or cystic duct. If, by our attempts to crush a stone in the cystic or common ducts, we have reason to think we have injured the ducts, we can introduce a drainage tube to the suspected point, either with or without gauze tampons. In one case, Mr. Tait so injured the duct that the water used to irrigate the gall-bladder came out of the duct at the bottom of the cavity. He introduced drainage tubes both into the gall-bladder and down to the injured duct, and a perfectly undisturbed recovery ensued. The experience of Shephard, of Montreal, is even more striking, for in his case, being unable to attach the gall-bladder and matted tissues to the abdominal wall, he introduced a drainage tube into the bile-containing cavity, and a rapid recovery followed. In case of excision, unless the conditions were very favorable to an exact suture, I would introduce a drainage tube down to the duct, and endeavor to shut off the abdominal cavity by gauze packing. There is one class of stones to which neither of these methods may be the best applicable, and they are the cases of large stones, either projecting into the duodenum, or lying in the common duct immediately above it. In these cases we may attack the stone from within the duodenum, nibbling it away with forceps if it projects into the gut, or, incising the duodenal part of the duct, extract the unbroken stone. This last was successfully done by Dr. McBurney this year, in a case in which I had a year before urged an operation after a prominent clinical teacher had, by a diagnosis of malignant disease, discouraged all operative interference as unjustifiable. After a year's uncertainties, Dr. McBurney was consulted, and the next day operated. He found no gall-bladder, but a large mass over the duodenum in the common duct. By a free incision in the duodenum, and incising the orifice of the common duct, he delivered a gallstone the size of a pigeon's egg; the intestinal wound was sutured, and a prompt recovery followed.

THE RELATIONS OF THE OS UTERI TO STERILITY IN WOMEN.

Read before the Kings County Medical Association,

BY J. R. VANDERVEER, M.D.,

OF BROOKLYN, N. Y.

It has been facetiously said that facts alone are more unreliable than statistics. However that may be, according to the late Dr. Matthews Duncan, the comparative fertility of the human female "increases gradually from the commencement of the child-bearing period of life until about the age of thirty years is reached, and that then it still more gradually declines," and "that it is greater in the decade of years following the climax of about thirty years than in the decade of years preceding the climax." The same author states that 15 per cent. of married women, between the ages of 15 and 45 years, are found to be sterile; others claim the proportion to be one in 8.5, one in 10, etc.

Sterility chargeable upon the female alone during the period of reproduction is rare in the domestic animals, and when existant is usually caused by some obstruction, congenital or acquired at the uterine introitus. A like state of affairs is probably, in some measure, but not absolutely, true in the case of the human female in a state of natural simplicity of life and habit.

Nature's operations are simplicity itself when the proper conditions exist. In the case of human conception, this is well expressed by the late Dr. Marion Sims in his proposition "that conception must follow in every case in which it is possible for a spermatozoon to enter the uterine canal and come in contact with a healthy ovum, the sole condition required for this

being that both the man and woman should be in normal health."

In the paper presented for your consideration I shall not attempt to touch upon all, or even many, of the points relating to the comprehensive subject of sterility in women, but briefly confine myself to the part played by the cervix uteri in the act of conception, and the diseases and abnormalities of the uterine neck, which are responsible for the failure of that physiological process.

Departures from the natural position of the uterus are not of themselves a bar to conception. There may be at times certain conditions in which uterine deviations, notably flexions, may offer obstruction to entrance of the fecundating principal and its contact with the matured ovum, but conception *does* occur in versions, and even in flexions, as experience amply proves.

Dr. Herman Beigel, of Berlin, quoted in the *Obstetrical Journal of Great Britain and Ireland*, Vol. I, states that "we must not so much consider the degree of the version as the determining cause of the sterility as the relation of the lip of the os to the anterior or posterior wall of the vagina, according as we have to do with retro- or ante-version." Hypertrophic growths of the uterus descending into the cervical canal, and growths from the cervical mucosa itself, such as mucous polypi, protruding through and altering the form of the os externum, and rendering it more or less impervious from without, claim but a passing allusion. Stenosis of the cervical canal, either congenital or acquired, has been, it need hardly be stated, considered a potent factor in the causation of sterility, and to such stricture has the greatest attention been directed in the literature of that sterile state for which the female alone is responsible.

The form of the human cervix uteri differs in some respects from that of the domestic animals, notably in the presence of a *true cervix*—that is, in the existence of external and internal ora. In the mare, the os uteri resembles the human os internum, there being no true cervix and nothing resembling the more dense os tincæ of human kind; in the cow, the os extends more into the vagina, and is somewhat more dense than in the mare, but there is no internal os, but there are found extensive mucous folds; the cat possesses the peculiarity of having the cervix longer than the uterus, and rather more dense in structure; and the sow has no true cervix, the uterus being a prolongation of the vagina, there existing a more narrowing between the two (vide Chanveaux, on the Comparative Anatomy of the Domestic Animals, p. 887, et supra).

This peculiar structure of the uterine cervix in our species thus makes it evident that the human spermatozoon has a more difficult journey to reach the uterine cavity than has the spermatozoon in the case of the brutes.

By most writers the os internum is considered the offending point in sterility from cervical stenosis, so it most undoubtedly is in obstructive dysmenorrhea; but experience teaches (at least such has been the experience of the writer) that there is no more difficulty than usual in passing the sound in sterile cases, through the os internum, except in flexions at the level of the os, and even then if the uterus be straightened the sound passes readily enough if patience is exercised. The facts being as stated, as far as the os internum is concerned in sterile females, what is found in relation to the os externum? In the great majority of cases we have a circular or so-called pinhole os in a more or less conical and elongated vaginal portion, or less frequently in a vaginal portion shorter than usual, but still showing the os circular, small and differing in various degrees from the normal and transverse opening of the os tincæ.[1]

In the anatomical structure of the human cervix the os internum would seem to be sphincter-like, and therefore retentive, while the os externum denser and more cartilage-like, and provided with lips, so-called, and a transverse opening or mouth, would seem to be receptive; that is to say, the os externum is more concerned in *conception* alone, and the internal os (after conception has occurred) in the *retention of the impregnated ovum* during its progressive development until its final expulsion at term.

What is the physiological function of the uterus, including the cervix, in conception? Do spermatozoa, unaided and undirected, find their way into the uterus? These are questions as yet not fully answered, although the German writer Wernich, of Berlin, and Dr. J. R. Beck, of Indiana, U. S. A., claim, partially, at least, to have solved the mystery. With Dr. Beck's paper, read before the American Medical Association June, 1874, and published in the transactions of that body, and also in *The American Journal of Obstetrics*, Vol. IX, probably all are familiar. On this part of the physiology of generation, as Dr. Grailly Hewett puts it, "we must be content to await the further advance of knowledge." Still, *whatever* the modus operandi, a spermatozoon once within the cavity of the cervix, and remaining in a vital condition, *can* (and often *does*, even in flexions) pass through the os internum, which passage is in no case smaller than the uterine opening of the Fallopian tube, through which one or more spermatozoa pass, when *ectopic* gestation occurs, if not in *all cases of conception*.

Thus the peculiar structure of the uterine cervix of the female of the human species—viz., an elongated vaginal portion with both external and internal openings differing entirely in character, and in a degree in structure—renders it a more difficult journey for the spermatozoon to the cavity of the uterus, than in the lower animals, as already alluded to. If it be true that the normal function of the os internum be retentive after impregnation, and that its spasmodic narrowing, causing dysmenorrhœa and sterility, be pathological, it seems only reasonable that some regard should be exercised in remedial measures to the different parts played by these two ora, and care should be taken that their normal functions be not impaired.

Obviously the treatment, when the os externum is occluded by one of the lips, is the removal of so much of the lip as hinders ingress to the os. The treatment by probes of lead or other metal, of Macintosh, fifty or more years ago, was the forerunner of the various treatments by dilatation of the present time. The cutting instruments of various design came in vogue with the introduction by Sir Jas. T. Simpson, of his hysterotome.

The objection to like instruments, as was said by Marion Sims, was that they "cured too much" by cutting too deeply at the region of the internal os, and so, often producing hæmorrhage which might result seriously, if not receiving immediate attention; and the undue potency of the os internum of a uterus

[1] Vide Barnes, on Diseases of Women, page 42.

so operated upon, was compared by the late Dr. Chapman, of this city, to an inverted bottle without a cork. Rapid and forcible dilatation, so-called, comes next for consideration. This method makes the stress of dilatation at the os internum chiefly, the instrument being introduced closed and then opened out with great force, thus overcoming resistance by tearing, often, as well as simply dilating. It seems to the writer that this method is inferior to that by the knife, in its lack of precision, and by the amount of laceration, which cannot be predetermined.

In the *American Journal of Obstetrics*, Vol. vii, page 244, was a short article with a wood-cut of an instrument devised by me, which device I hoped would be of service in the treatment of dysmenorrhœa, and incidentally of sterility. A cut of this instrument is also shown in Dr. Mundé's Minor Gynecology, and commenting on this dilator, the doctor says that it is, no doubt, easy of introduction, but he fails to see its advantages, inasmuch that the other instruments in use dilate the external as well as the internal os, and where the external os alone requires to be dilated, it may be as well done by an ordinary dressing forceps.

I may here state that before I had the instrument alluded to made, I used the knife for transversely widening the os externum (by Peaslee's method) and found that method sufficient without cutting higher, and employed the sound for dilating the internal os. Previously I used an instrument which I had made, similar to the dressing forceps, but much stronger in blade, for dilating the external os, but the instrument failed decidedly, as it either principally expended its force up the *cavity of the cervix*, or when but just introduced by the tip of the blades within the os externum, they either slipped out when an attempt was made at expansion, or made troublesome lacerations. The instrument of my devising, which has been already alluded to, hardly comes under the head of *rapid* and forcible dilators, though forcible it certainly is, as are all dilators in different degrees, but it is neither rapid, not designed to be so. But the claim is first, that it does not require the speculum in its application. Second, that it can be frequently applied, and as I believe with perfect safety, and third, that the patient is not obliged to forego her usual vocation while under treatment.

Dr. Thomas, in his work on diseases of women, in the close of the article on sterility (p. 617) says: "In spite of the fact that we have at our disposal many valuable recourses for the removal of the causes which create sterility, were I asked to mention the part of the field of gynecology which yielded me the least satisfaction and the greatest disappointment, I should cite this." It will thus be seen that phenomenal success has not crowned all measures for the removal of sterility in women.

Personally the writer has not had as many opportunities for the treatment of sterility as those who devote their entire professional work to gynecological cases, but when he has used the instrument for dilating transversely the os externum and probing the os internum, the result has not been entirely discouraging. Doubtless some of the cases have been failures, as the subsequent histories of many of the subjects treated for short periods, have become unattainable. A few cases, however, which have been under personal observation until a final report could be made, I beg briefly to present:

Case 1.—March 10, 1874. Mrs. A. N., æt. 31. Married 1863. Has never been pregnant. Has been troubled with dysmenorrhœa at times severely, with periods of entire immunity. Has been before treated, but not instrumentally. Examination shows the position of the uterus to be normal. The sound passes into the uterus without much difficulty at the internal os. Small and scarcely transverse opening at os internum. Dilator used with difficulty and pain at external os, to as great an extent, however, as the patient could bear without being anæsthetized.

March 14, 20, April 4, and 18, same treatment. July 6, blades opened fully. September 28 and October the same. Shortly afterwards, to her great astonishment, as she had never expected to become a mother, and had therefore adopted an infant, she found herself pregnant. At term she was delivered of a living female child, and another one was subsequently born, when shortly after this she became a widow.

Case 2.—April 12, 1875. Mrs. M., precise age not ascertained, probably 36 or 37. Married two years. Husband was at time of marriage a widower with several children. This patient was in enjoyment of good general health, was well formed inclining of fullness of habit, though rather short in stature. Has no pelvic pains or aches, and alone seeks professional aid for the cure of sterility. Examination shows uterus normal in size and position with the peculiarity of a cervix almost rudimentary as far as length goes, and presenting a scarcely appreciable os tincæ. Dilator was introduced and as much as possible opened. On account of the extreme shortness of the cervix, the instrument had to be passed some distance through the os internum. April 14, 22; June 15; August 9; September 8; December 22; January 10, 22, 1876; February 7; May 24; July 13; September 11, 12; October 16, 29; January 18, 1878; April 17. On June 17 she reported passing two menstrual periods, and thought she had become pregnant. In July she had presumably a miscarriage. Early in the following year she again became pregnant, with a like misfortune at the third month. Subsequently on a visit to the Pacific coast in the following year, she again became pregnant. She again miscarried, but after the *fourth* month. She has not since become pregnant, and menstruation has ceased.

Case 3.—October 1, 1881, Mrs. M. I., age 22. Married April 12, 1881. Has suffered from dysmenorrhœa from the inception of menstruation, otherwise in perfect health. Until the present time has never sought professional advice, merely using domestic remedies and keeping quiet during her periods. After marriage she has been growing steadily worse instead of better.

Examination shows body of uterus normal, exhibiting neither version nor flexion. Vaginal portion of cervix of natural length, but somewhat conical, and there is an approach to the typical pin hole os, no tenderness or induration. Short dilator was carefully and slowly introduced, and gradually opened until pain became pretty severe, closing and opening for three or four minutes. (The shorter instrument here mentioned, was made for me in 1878 for use in cases where the external os alone needed to be dilated, without interference with os internum.) After the use of this shorter instrument, a sound, which had been previously coated with a thin coat of ext. belladonna for a short distance from top downward, was

carefully passed through the os internum. October 4, on introducing dilator found that finally I could expand to full extent the proximal part of blades, and keep them so expanded for about half a minute, without much discomfort to the patient. The sound was then passed, as at first visit, but without belladonna; same treatment October 8. October 11, long instrument was used and thorough dilation verified. Pregnancy followed in November and on September 16, 1882, she was delivered by me by forceps, after a somewhat lingering labor, of a healthy female child. Up to the present time three other children, all females, have been born by nature's unaided efforts.

All of these three cases not only, but all others where these instruments were used, were treated without the use of the speculum or anæsthetics.

A SKETCH OF MR. LAWSON TAIT AND HIS WORK.

BY FRED BYRON ROBINSON, B. S., M. D.,
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PROFESSOR OF GYNECOLOGY IN CHICAGO POST-GRADUATE MEDICAL SCHOOL.

(*Continued from page 79.*)

From 1878 to 1881, Mr. Tait gave what is called Listerism a three years' trial. The brilliant achievements of Keith at this time were attained under Listerism. It must be understood that then Listerism included the spray. In those days, it did not mean merely *cleanliness*, but the overshadowing ideas were chemical lotions and the spray. That form of Listerism which included the spray and chemical lotions, he gave a three years' trial, and abandoned it. Mr. Tait said, at the time, he thoroughly tried it for the reason that, if a surgeon lost patients without using the system, he might be condemned by his colleagues. The puritanic idea of Listerism, twelve years ago, was that there were poisonous germs everywhere, and the only way to practice the new surgery of antiseptics, was to cut off every avenue by which the germs could gain access to a wound. But, as I visited the clinics of Austria, Germany and England, I was astonished at the various methods of carrying out the system. It was not uncommon to see the most avowed disciple of antiseptics really omit dangerous avenues of infection by unpardonable uncleanliness. He depended too much on the "antiseptics." On the other hand, in those days, one could see the pronounced opponent to Listerism being more minutely *clean* than its devotee. But Listerism, like Christianity, and all things human, has gone through stages of progress or evolution. The non-essentials of any system soon die out. Besides, the harmful things soon become detected in all systems. So the unnecessary spray, and the harmful chemical lotion, gradually began to be eliminated from Listerism. The birth of Listerism was simply the heraldic gospel of cleanliness. So far as I can see, Mr. Tait's idea of infective germs is based on the view of decomposition. He asserts that if the wound has no decomposing material, there need be no fear of germs; that the decomposing material is the only nest in which germs will thrive. If the wound is cleared of microbic soil, the microbe will and must go with it, for then the germ will neither have house to live in nor food to nourish. Of course, it must not be forgotten that it was urged against Mr. Tait, with a fair show of reason, that he was trying a system in which he had no faith. At the time he was giving Listerism a three years' trial, it appeared to many surgeons that he was using the spray to pronounce its doom, and the chemical lotion to detect the evils in its use; for Mr. Tait said, before he finished trying the method, that the case of the antiseptic system is not proven. Yet during periods of trial of great systems, silence does not always brood over a nest full of eggs, neither does volubility sit on an empty nest. But the test of time is the golden medium that stamps results. So far as I can see by watching Mr. Tait work at the present time, Listerism taught him what it taught the world, and that is, *antiseptic surgery is a gospel of cleanliness.* However, I understand Mr. Tait claims that Prof. Simpson taught the gospel of cleanliness long before Listerism arose. Simpson's laconic way of putting the subject was, that antiseptics would not take the place of soap and water. It is known that Prof. Simpson used to make fun of Listerism. It proclaims that the sin of infection may lie on the hands of neglect. Mr. Tait is announced as an opponent of antiseptics. Yet a description of his present methods will best show in what relation his practices stand to the acknowledged disciples of modern Listerism. The subject of sponges or no sponges has been so often lauded or condemned, that I will describe Mr. Tait's method of using and preparing sponges. New sponges are put in a large quantity of water, to which has been added sufficient HCl to make the water taste disagreeably acid. They remain in this mixture until all effervescence ceases. As the calcium and other bases neutralize the HCl, it may may be necessary to renew several times the HCl. The sponges are afterward carefully washed and made as clean as possible from foreign matter and rough particles. After being used at an operation, they are worked clean from blood, and put in a jar of water, in which there is put a pound of $NaHCO_3$ to twelve sponges. Here they remain, generally twenty-four hours, and then they are worked clean of the $NaHCO_3$. This requires hours of hard work, squeezing and kneading the sponges in large quantities of hot water. They are then put in a jar of 1 per cent. carbolic water for twenty-four hours. The sponges are then squeezed dry, and tied up in a white cotton bag, which is hung up in the kitchen until wanted. One person is alone entrusted with the responsibility of keeping clean sponges. It will be distinctly noticed that the sponges are put in a dry, almost continually hot place, and no principle could be more detrimental to the growth of any germ than *dry heat.* Dry heat and no food will kill any microbe. It will also destroy the soil in which it might grow. These sponges are used many months, until Mr. Tait detects in a sponge some suspicious deficiency, when he tosses it to one side for other purposes.

For ten years the name of Lawson Tait has been a household word in medical circles. He is a very industrious man and though he does an enormous amount of gynecological work, yet he finds time to be one of the most voluminous contributors to the best periodicals in literature. His powerful physique is one of the great instruments which enables him to accomplish so much. His good memory and keen natural powers of observation enable him to systematize the essentials of his work so that he is ready at a moment's notice to produce a valuable article. He generally only writes on living subjects in his own specialty. His attendance at gynecological societies

is remarkably frequent for a man with so large a practice. During the past ten years Mr. Tait has widely extended his work. He has extended his surgical operations to other viscera besides the pelvic organs, especially to the kidney and liver. I think he has done over 70 operations for cholecystotomy with some four deaths. One of the deaths was due to pulmonary catarrh three weeks after the operation. Two deaths were due to cancer. One patient died from the operation. His work on the gall bladder has been remarkably valuable and original.

In extirpating the kidney, Mr. Tait, so far as I have seen, always clamps the pedicle. He cuts down on the kidney at its outer border, and draws it out of the wound, places a wire around the blood vessels that form its pedicle, and screws up the clamp until bleeding is stopped. The clamp is then tightened as required during the next few days. I saw him extirpate a kidney, containing about four ounces of pus, from a woman who was five months pregnant, and she made an excellent recovery without miscarriage. The operation which, no doubt, has spread his name the most extensively, is that for ectopic pregnancy. In this operation alone he has erected an enduring monument to himself. He has systematized the treatment of ectopic gestation into that of a surgical operation. For ages men knew that women died from ruptured ectopic pregnancy.

Autopsies demonstrated that these women bled to death just as a woman would bleed to death from an open radial artery. Medical men had watched the red stream of life ebb slowly away, and even a belly full of blood at the post-mortem table had not impressed them with the idea of how to save life. As time rolled on the advance in medicine brought forth the significant expression that in ruptured ectopic gestation the surgeon must cut down and stop the hæmorrhage. But surgeons feared to cut down in these cases because the diagnosis was so *uncertain*. The genius of Tait was shown when he said: "I open the abdomen without minding the diagnosis in these cases." The incision is both exploratory and confirmatory. Mr. Tait distinctly announces that Mr. Hall-Wright, of Birmingham, first gave him the suggestion to remove a ruptured ectopic gestation by abdominal section. But he said he did not at first have courage to act on Mr. Hall-Wright's brilliant and bold suggestion. But time and thought convinced him that surgical laws had no boundaries where hæmorrhage should not be checked whether it be in the brain or belly. As courage increased with experience he began to have wonderful success in operations on ectopic gestations. It was a simple thing to stop bleeding by simply tying a ligature around an artery, yet Ambrose Paré was the first man who did it systematically. So it does appear that it was quite a simple matter to cut into the abdomen and remove an ectopic gestation sac, but Mr. Tait was the first man who put the operation on a generally recognized surgical basis. He has performed over fifty operations for ectopic gestation with a mortality of 6 per cent. He cuts through the abdomen in the median line and then attempts immediately to secure the bleeding point. The gestation sac is drawn out of the wound and ligated off. This is the method for early gestation.

If a large placenta exists he stitches it to the abdominal wound, and drains it. He now announces that he will cut the cord short off at the placenta and close the abdominal wound, leaving the placenta inside the abdomen. If the placenta be absorbed no further operation will be required. If the placenta give rise to septic trouble, a second operation can be done to remove it, when the condition of the patient indicate. Mr. Tait has donated some twenty-five specimens of ectopic gestation to the Museum of Queen's College in Birmingham. So far as I have seen, this collection, with some donated by others, is the finest in the world. An excellently preserved specimen of interstitial pregnancy is seen among them. This is the specimen from the patient on which Mr. Tait operated for right-sided ectopic gestation in 1885. In 1886 she had a child normally, but in 1888 she became pregnant on the left side, in that part of the tube which is embraced by the uterus. As she was doing her household duties she was suddenly seized with acute pain in the epigastrium, and died in about seven hours. The autopsy showed, as the specimen indicates, that an interstitial pregnancy had ruptured through the upper left coruna. Could this woman have had assistance in time she could have been saved by a Porro's operation. Nothing but the removal of the whole uterus would save her. From this specimen also, one can see that this case could not possibly have been diagnosed from a normal pregnancy. Mr. Tait's views are that, so far as evidence exists, ectopic pregnancies are tubal, and that the tube ruptures before the fourteenth week. The rupture occurs either into the abdominal cavity or into the broad ligament. A secondary rupture may occur from the cavity of the broad ligament into the peritoneal cavity. He announces as the cure of ectopic gestation a desquamation of the ciliated epithelium lining the tubes. Deficient ciliated epithelium of the tubes gives rise to deficient transport of the ovum through their channel, and also it permits the entrance of spermatozoa to fertilize the ovum before it can get into the uterus. Mr. Tait has had an unparalleled experience in abdominal surgery, and yet after watching him for months in his daily practice on all kinds of abdominal tumors I have never heard him claim to be able to diagnose ectopic pregnancy. He claims that a man can diagnose with justifiable certainty that an exploratory incision is demanded.

I have seen Mr. Tait operate twice in one day for extra uterine pregnancy, and both women made excellent recoveries. One I saw every day or two for a month, when she left for home. This woman just before the operation looked the picture of a corpse. Two things were diagnosed before operation by various medical men: (*a*) ectopic gestation; (*b*) a rotated ovarian tumor. Mr. Tait opened the belly and found that the gestation had ruptured into the abdomen probably a few weeks before. It appeared to be a fœtus of eight weeks, and had been dead some time. The belly had large amounts of big clots of blood in it. The gestation sac was tied off and the abdomen thoroughly irrigated with quarts of warm water. In this case it looked as if the placenta had gone on growing after the death of the fœtus. The woman got an hæmatocele, which retarded recovery. Dr. Martin opened it through the abdominal incision and washed it out several times with a long double-channelled catheter with iodine water. The high pulse and high temperature disappeared like a charm. At the end of a month she was ruddy and very happy. This was one of the most typical samples of the

restoration of health by surgical procedures that one can ever see.

No one can watch Mr. Tait work without observing that he has unbounded confidence in abdominal exploration, and that the diagnosis is to be made and emergencies met after the belly is opened. One of the most remarkable powers of Mr. Tait is his genius in successfully meeting any contingency or emergency that may arise in an abdominal operation. He does not attempt to make a positive decision of what is in an abdomen before exploration any more than a lawyer would attempt to announce the contents of a will inside of a closed box.

One of the most useful operations which Mr. Tait has given to the profession is his flap-splitting operation on the perineum. He often will do this operation in five minutes. The procedure is accompanied by no loss of tissue, and if it fails, which it almost never does, the woman is no worse off than before. He has made an excellent addition to this operation for the purpose of retaining a prolapsed uterus within the pelvis. It consists in extending the flap-splitting up to the urethra. The whole raw surface of these flaps are coated by deep sutures of silk-worm gut. He generally uses three sutures, and does not pass them through the skin, but in the newly cut tissue only. It is the only operation that really restores the original perineal body. Mr. Tait has cultivated Porro's operation with very promising results. He prefers it to Cæsarian section. In performing a Porro he cuts down on the uterus and puts an elastic ligature around the neck of the uterus to control hæmorrhage. He then cuts a little hole into the anterior surface of the uterus and introduces his fingers so as to tear the uterine wound as large as is required. By tearing he avoids cutting into the placenta if it happen to be located on the anterior endometium. The ligature around the neck of the uterus is now tightened, and he pushes his hand through the fœtal membranes and extracts the child. The cord of the child is tied and a nurse takes charge of it. By this time the uterus has contracted much smaller and it is easily drawn out of the wound, and the elastic cord is tightened up so as to form a clamp. Two knitting needles are passed through the neck of the uterus, conically, to fix it in position. The uterus is then amputated and the parietal and visceral peritoneum coapted as carefully as possible. The after treatment is the same as hysterectomy. During my six months' course with Mr. Tait he would show me, with much pride, what he called his "Porro boys," many of which are named after him.

Mr. Tait advocates a Porro for a complete cure of placenta prævia. He also says it is applicable in early cases of severe infection after labor. The operation can be done easily and quickly. He did one of his Porro operations in eleven minutes, and he remarked to me that any ordinary practitioner ought to complete it in twenty minutes. He told me he had done about twelve Porro operations with *no death*. This is simply amazing progress. He kindly made me a present of one of the stumps of the uterus from a Porro, and I have it now in my office. The stump with its pin and rubber ligature is ample evidence of the simplicity of the operation. It seems to me that Porro's operation will have a great future. It will prevent the dreadful mutilations of women in labor, which are followed by fistulæ, unmeasured pelvic mischief and lifelong invalidism. I well remember when I used up a whole night in tearing a child away from a woman by piecemeal. I thought surely I had mutilated her so that she would die; but she lived in spite of my terrible work on her. About a year before my colleague had done his best to mutilate her as bad as I did, but she recovered. Two successive and consecutive times did two of my colleagues work together afterward on this woman, with the most terrible struggles to get away the children in small pieces, and yet she got well. Here are *four* of the most horrible operations I ever saw done on a woman, each requiring nearly half a day, yet she still lives. I wonder if she would not have withstood one Porro, which could have been done in fifteen minutes? And by that one Porro she would not only have got rid of all other operations, but would have had one living child instead of none.

In 1889 the first volume of his work on diseases of women and abdominal surgery appeared. This work was generally recognized as the most original of its kind yet published. It represented mainly his own experience in a condensed form. An unfortunate thing to the reader of the book is that it is not systematically classified and very badly indexed. It is to be hoped the publishers will remedy this in the next edition. Some of the most valuable parts of this book are found in the discussions of the uterine appendages. A careful reading of the work suggests that the uterine appendages are subject to more disease than was, years ago, dreamed of. The able manner in which additional testimony is given to Dr. Grigg's theory that much of the fatal puerpural fever is due to rupture of dilated tubes or cysts connected with tubes and ovaries, is very valuable. However this book has been reviewed by the press, we are very hopeful that the second volume of this work will appear in the near future.

During the past five years Mr. Tait has brought out some new views relative to urachal cysts. In fact, he has been an epoch-maker in this department of surgery, putting it on a recognized surgical basis. Up to 1886 he published some fourteen cases. How many he has had from 1886 until now I do not know, but during my course with him he had four very typical ones. This makes at least eighteen of those peculiar dilatations of functionless ducts. They are called extra-peritoneal cysts, Allantoitic cysts, or urachal cysts. They consist of a dilatation of that part of the stalk of the allantois which reaches from the umbilicus to the summit of the bladder. They arise from a nonclosure or non-obliteration of the urachal duct. Their most frequent ætiology lies, no doubt, in fœtal life, but may arise in post-natal life. Mr. Tait divides his cases into two classes, giving as his reasons that in the first set of cases the cyst walls were tougher and could be separated from the other viscera. The cyst walls did not dip down into the pelvis; they thus did not represent the pelvic peritoneum entirely, being rather an anticipation of it in its incomplete growth, which, like it, embracing in folds the pelvic viscera. In the second set of cases of urachal cysts he notes that the cyst walls were friable and brittle and gelatinous; the cyst dipped down into the pelvis; the cyst wall acted as peritoneum to the pelvic organs; the peritoneum itself did not enter the pelvic cavity. Women with both kind of cysts bore children.

We can look at these cysts, big or small, as urachal dilatations simply, or we may consider them as form-

ed so early from the allantois that their wall acts really as peritoneum for the pelvic viscera; the view which Mr. Tait favors. The relations of these cysts make it quite impossible that they could be gradually developed so that the cyst dissected off and displaced the pelvic peritoneum, and still hold it in relation to the ovary and fimbriated end of the Fallopian tube. The cyst walls must be looked upon as various degrees of pathological processes, or as entirely two different structures. If the cyst wall be looked upon as really functional peritoneum formed originally out of the allantoitic sac, then a very different process, is to be viewed. Under this view the pleuro-peritoneal cavity will have two diaphragms—a diaphragm in its ordinary place and another at the top of the urachal cyst, generally about the umbilicus. The intestines will not descend below the fœtal constriction formed near the umbilicus and they will really lie between two diaphragms. The pelvic cavity will then be a third compartment in the pleuro-peritoneal cavity. The cyst wall of the urachal dilatation never can be extirpated from its bed. Mr. Tait's reports show the largest experience of any surgeon in this subject. In one of the typical cases in which he extirpated while I was with him, he asked me to examine the interior of the cyst cavity in the abdomen after he had opened the belly. My hand passed into a large open cavity and I felt the intestines pushed away up above the umbilicus and they seemed to be resting on a kind of diaphragm. The lower belly and pelvis was all open. Low down in the pelvis I could feel the uterus confined against the pubes. The tubes ran outward to the pelvic brim. The cyst wall varies in thickness up to that of sole leather. Mr. Tait drains these cysts by circular drainage *i.e.*, a drain tube is passed into the abdominal wound, then through Douglas' cul-de-sac into the vagina, so that fluids can flow both ways. He washes out the cysts with iodine water at first daily and afterwards as required.

Mr. Tait sustains a private hospital for the treatment of his surgical cases. This hospital bears evidence of good ventilation and plumbing. The rooms of the building are partitioned off by solid brick walls. This deadens noises and enables the various rooms to be as quiet as desired. The furniture of the hospital is simple and not excessive. Matting is laid in the halls, and carpets on the stairs. Rugs instead of carpets are used in the patient's rooms. He keeps twenty-five beds which are generally full. Many times no room exists in his hospital and patients are operated on at some private house. This does not include his beds at the Birmingham hospital for women, which so far as I could see were about always full. He keeps twelve nurses in his private hospital. He selects young and intelligent women for nurses, and then he trains them in his own hospital. He seems desirous that they shall be neat, cheerful and interested in the work. It is a matter of surprise what eagerness one of these nurses will manifest in trying to get a case well who has been put in her charge. Each nurse counts, sadly, her death records, and she will often announce with pride how many months she has nursed patients without a single death. The nurses become as anxious and enthusiastic as Mr. Tait, and his assistant, Dr. Martin, in getting the patient over the operation. Also a healthy rivalry exists among the nurses in having the best record of recoveries at the end of the year. One nurse who had been with Mr. Tait five years said she had nursed about fifty hysterectomies with three deaths. Another said she had not one death in a year. Another announced with still more pride that she nursed one year and eleven months without a death. A nurse is given charge of a patient on whom abdominal section has been performed, and she sits up with her for forty-eight hours without sleep, in severe cases, and the nurse is not allowed to leave her for five days. After that the patient is left for short intervals but a bell string is close to the patient's hand which she can pull at any moment. This is connected with an electrical apparatus in the dining room where it is most readily recognized. When a patient arrives at Mr. Tait's private hospital she is assigned to a room generally for a few days before the operation, so as to be thoroughly rested and quiet. It is astonishing to see how patients come from distant countries to this surgeon. Women come from every land under the sun to be operated on. He taps the world's clinic for his patients. The tongue of the orient or of the western hemisphere may be heard in this hospital. Rest in bed for a few days, a vaginal douche, and a slight laxative the previous night is about all the preparation the patient gets for the operation. The nurses are taught how to prepare everything for the operation. The operation is done in the patient's room, where she will remain. Mr. Tait does not have a single operating room. A board about 18 inches wide is laid on two "horses" for a table. It is covered with a blanket. As soon as his assistant, Dr. Martin, puts the patient to sleep one of the nurses calls Mr. Tait from his house, which joins his hospital. He enters the room and at a glance generally satisfies himself if all things are in readiness. Everything is very quiet during the operation.

Mr. Tait stands at the right of his patient. His single assistant is mainly one of his pupils. I will say that the whole duty of this assistant is to keep his mouth shut and to do *only* what he is told, which is astonishingly little. He makes an incision only large enough to admit two fingers. After exploration it is enlarged, if necessary. He insists on the patient being deeply anæsthetized. His acquired skill and dexterity enables him to be very progressive and rapid in his operations. The operation is very often finished inside of ten minutes, while complications, of course, lengthen the time. I have often seen him do abdominal section in between five and seven minutes. It is not at all uncommon to see him do a perineal operation in five minutes. No doubt these rapidly completed operations give the patient better chances for recovery. Shock sinks to a minimum. Mr. Tait does not seem to work so rapidly, but every movement is progressive and forward from the beginning to the end. No hesitation, no dancing about of fingers, no unsettled plans, are observed while he operates. Mr. Tait closes the abdomen with a three-cornered (buckskin) needle, threaded with silk. He uses it without a needle holder, simply pushing it through the abdominal wall with his fingers.

As soon as the operation is finished, Mr. Tait retires, and leaves the patient to the appointed nurse, who soon gets the room in order and the patient in bed, when she quietly goes on with her charge. In no field of surgery is a trained nurse so invaluable as in abdominal surgery. But it requires at least two years of practical work for a nurse to master many of the essential features. I will simply speak of hæmorrhage. One of the golden rules which experi-

ence in abdominal surgery has taught us, is that when the pulse gradually and steadily rises with time, and the temperature falls after a section, it is a pretty sure sign that bleeding is taking place. Of course, the glass drain tube, now used by nearly every surgeon, is of inestimable value in bleeding. The nurse carefully watches the pulse and temperature to note their variations. I think an actual sample of a case that occurred in Mr. Tait's hospital, would illustrate the value of a trained nurse. A patient having myoma had her appendages removed, in order to check its growth and profuse hæmorrhage. The removal of the appendages was very difficult, and pedunculated myoma added to the difficulty. Considerable dragging on the uterus was necessitated during the operation. Some hours after the operation, the nurse detected the pulse gradually increasing in frequency. About midnight, the nurse found that the pulse had steadily arisen since the operation, and the temperature began to fall. This rise of pulse and fall of temperature was not fitful nor changeable, but steadily progressive. So she decided that dangerous hæmorrhage was taking place, and sent for Mr. Tait, who confirmed her opinion. He called his assistant and reopened the woman, and found the bleeding taking place from a little rent in the wall of the uterus. He performed hysterectomy, but the woman did not recover.

The nurse must also learn to distinguish between hæmorrhage and shock. That such matters require practical training, may be illustrated by a case I knew, where a pretty fairly educated general practitioner was put to nurse a laparotomy case, and his patient died of hæmorrhage inside of twelve hours. But he did not realize the value of a steadily rising pulse or a steadily falling temperature. It may be of interest to know what plan Mr. Tait follows as a diet for patients after an abdominal operation.

After the operation, if the patient goes on well, not any food or drink must be given, except a very little water; say after the first twelve hours, the patient may rinse her mouth about once every three hours till the expiration of forty-eight hours from the time of the operation. Then ½ pint of milk, with two tablespoonfuls of lime water, "which must be taken in sips about every fifteen minutes." If the patient be given the milk at 9 A.M., and she does not suffer from sickness (stomach), or distension, another ½ pint of milk may be given, with the same quantity of lime water, at 1 P.M. At 5 P.M., very weak tea with milk, also a little dry toast. At 8 P.M., gruel or arrowroot, then she may have a little milk or barley water to drink through the night. The third day add a little milk pudding for dinner. Fourth day add a little fish for dinner. The fifth day, poultry or meat may be given, the sixth day vegetables, and on the ninth day fruits, raw or cooked.

(*To be Continued.*)

SELECTIONS.

SURGICAL TREATMENT OF PILES.—On the basis of 200 cases of operation on hæmorrhoids, Allingham (*Medical Press and Circular*, 1891, No. 2724) discusses the surgical treatment of this disease.

He divides hæmorrhoids into two groups: the first including those which come down at stool, and those which are almost always in a state of prolapse and bleed profusely at each act of the bowel. In this class of cases the quickest operation is the best, since as a result of long-continued hæmorrhage there is always considerable anæmia, and therefore it is of prime importance that as little blood as possible should be lost from the operation, and that there should be a minimum of risk of secondary hæmorrhage. These requirements are fulfilled by the ligature, which can be applied in a very few minutes, and is practically free from any danger of after-hæmorrhage.

The second group comprises those piles which are chiefly troublesome because of the inconvenience they occasion, since they are prone to come down and prevent the patient taking any active exercise. These piles rarely bleed, and do not otherwise interfere with the enjoyment of good health. Here the great point is to select the least painful operation. The best modes are crushing or simply cutting off the piles and picking up any vessels that may bleed.

In the operation of ligation with incision the pile is drawn down by a vulsellum and separated from the muscular and submucous tissues upon which it rests. The incision is made upon the skin at the junction of the mucous membrane, and is carried up the bowel, so that the pile is left connected by vessels and mucous membrane only. A strong silk ligature is then tied as tightly as possible, and the ligatured pile is returned within the sphincter.

This method is very well suited to piles which are large and vascular, and are inclined to be sessile rather than pedunculated. It should be applied to patients who have any tendency to cardiac or kidney disease, or where there is a thrombosed condition of the vessels. It is the best to use when patients are feeble. Ligature is, in fact, the safest operation. Its drawbacks are that the wound takes some time to heal, there is more pain after operation, and on the first motion of the bowels, than after crushing or simple incision. There is more sloughing or suppuration until the ligatures have separated, and hence there is greater liability to some contraction.

The crushing operation consists in drawing the pile by means of a hook into a powerful screw-crusher, which is tightly screwed up, and distal end of the pile cut off. The crusher should be applied on the longitudinal aspect of the bowel, and should be left on the pile for about two minutes. This operation should be used when the piles are medium-sized and rather pedunculated, and the patients are in good health; but in bad cases it is not so safe as the ligature. In ordinary cases its advantages are that there is freedom from pain after operation; retention of urine is of rare occurrence; suppuration is not likely; there is little or no pain on the first action of the bowels, and recovery is usually rapid; after contraction is not common. The clamp and cautery are not favored by Allingham. He states that statistics show that it is quite six times as fatal as ligature or crushing; and burning gives more pain after operation, as is the case with all burns. Hæmorrhage is more likely to occur; there is greater sloughing of the rectal tissue. More time is required for healing, and greater contraction is common, as is also the case with all burns. The excision of piles is best applied to one prolapsed pile, to the single perineal pile, so common in women, or to one pile which is complicated with fistula, ulcer, fissure, etc. As a rule, one or two vessels require clipping. It is, therefore, inexpedient to excise many piles, for there may be trouble in picking up the divided arteries.

Allingham believes that Whitehead's excision method—that is, removal of the entire pile area and stitching of the healthy bowel above to the sphincter—is rarely necessary. It is a slow and bloody operation, and is at times followed by contraction. Few cases are really well under three weeks after operation, and premature resumption of the or-

dinary ways of life may cause a greater tendency to contraction, or what is worse, troublesome and tedious ulceration may supervene and take months to heal.—*Am. Jour. Med. Sciences.*

COFFEE AS A CAUSE OF PRURITUS ANI.—A correspondent thus relates a personal experience: "For many years I suffered from the most aggravated form of pruritus ani, which refused to yield to any one of the many remedies applied for its relief—nothing seemed to have the slightest effect in ameliorating the torture to which the intense itching subjected me. After exhausting the pharmacopœia I began to abstain from certain articles of food; one after another was dropped from my dietary for several weeks, but without effect until coffee was reached. An abstinence for a period of two or three weeks resulted in complete relief from the distressing symptom. As a matter of experiment the use of coffee was resumed for several days, with the effect of reproducing the pruritus; the experiment was tried several times with the same result. A year without coffee has been a year without pruritus."—*N. Y. Medical Journal.*

PARAFFIN IN DIPHTHERIA.—I have treated thirty cases (children and adults) with paraffin, and have had the satisfaction of seeing every one recover. My plan is to ask for the ordinary paraffin used in lamps, and, having scraped off the diphtheritic patch, to apply the paraffin to the throat (internally) with a large camel's hair brush. As a rule, the throat gets well in from twenty-four to forty-eight hours, and with improvement in the throat the paraffin is applied less frequently; but I continue its use for two or three days after the complete disappearance of the patches. In three very severe cases I found that, as the diphtheria gradually disappeared, tonsillitis supervened, which I treated in the ordinary way. I find from experience that it does not do to allow the paraffin to stand in an open vessel; it seems not to have the same curative effect if exposed long to the air. It should be poured out from the can each time it is used. I can speak definitely as to the therapeutic effects, but am unable to state what the chemical action of paraffin on the diphtheritic membrane is; I can only suppose that the hydrocarbons in the liquid exert some powerful influence on the membrane. I cannot see why, as the local action of paraffin is so beneficial in these cases, it should not exert an antiseptic influence if vaporized and mingled with the air in a room occupied by a diphtheria patient.

In conclusion, I would say that I have ordered a generous diet for the patient and a mixture containing tinct. ferri perchlor. and potass. chlor., to be taken every three or four hours, and that in some cases where, owing to the lateness of the hour, there was a difficulty in obtaining the medicine, the throat having been brushed diligently with paraffin, there was a decided improvement in the morning before any of the mixture had been taken, showing that the improvement was due solely to the paraffin treatment.—*Sidney Turner in the Lancet.*

BACTERIA IN DRINKING WATER.—Dr. W. Migula (*Centralbl. f. Bakt. und Parasitenk.*, Bd. VIII., No. 12, p. 353) makes a contribution to our knowledge of this subject which is really a new departure as regards the examination of drinking water. He points out that, although considerable stress has been laid on the examination of water for pathogenic organisms, there is no reliable rule to guide the hygienist in his examinations for the ordinary saprophytic organisms and their relation to the purity of water to be used for drinking purposes. Dr. Migula washes out small flasks with bichloride of mercury; then, after rinsing them with the water to be examined, he leaves a specimen in the flask, which is plugged with sterilized cotton wadding and covered with an india rubber cap. It is not necessary to pack the flasks in ice, as it is assumed that if any of the organisms multiply they will all do so, while if the putrefactive organisms (those that liquefy gelatine) grow more rapidly than the others, independent evidence is obtained of the impurity of the water. Cultivations are made in flat glass dishes in order to save the time required in manipulating plates and tubes during the cooling process. After examining 400 springs, wells, and streams the author has come to the conclusion that where there are more than ten species in any sample of water, especially when these are not species ordinarily met with, the water should not be used for drinking purposes. He found that only in fifty-nine waters was this the case, but that 169 waters contained more than 1000 organisms per cubic centimetre, sixty-six of these having over 10,000 (forty over 50,000). From these figures it will be seen that some of the sources of supply would be condemned by the old method but would be passed by the new, and some condemned by the new would be passed by the old. Migula found in all twenty-eight species, and in a series of tables he brings out the fact that the number of colonies does not by any means correspond with the number of species, though in some cases it undoubtedly does so. This is, in fact, an exceedingly variable quantity. It also comes out that putrefactive bacteria are almost invariably absent from spring water; that they are most frequently found where the number of species is great, and where the number of colonies is between 1,000 and 10,000 per cubic centimetre; that they also occur where the number of germs is below fifty per cubic centimetre, but very seldom where the number is over 10,000.

Dr. L. Schmelk who recently (*Centralbl. f. Bakt. und Parasitenk.*, Bd. IV., No. 7, p, 195) pointed out there is a great increase in the number of bacteria in the water supply of Christiana during the period that the upland snows are melting most actively, now (*Centralbl. f. Bakt. und Parasitenk.*, Bd. VIII., No. 4. p. 102) gives further evidence collected during the last three years in proof of his theory. The numbers he finds for those years were ten or fifteen per cubic centimetre in March to 2500 in April, 1888; 1100 in 1889, and on March 28, 1890, 5000; the breaking up of the winter snows having occurred this year much earlier than usual. This is the period during which the winter snows are melting, and after this is completed there is no marked increase in the number of bacteria in the lake water until the reappearance of the winter snows, some of the earlier falls of which during October, November, and December melt and disappear. In December the number of bacteria per cubic centimetre sometimes reaches 600, the highest point recorded during the year except in March. Dr. Schmelk thinks that the increase is due to the action of frost in breaking up the earth's surface, from which the contained organisms may be set free as soon as a thaw occurs and then washed away along with the surface soil, just as during great rain-storms. He also points out that the masses of ice projecting into a river may form "collecting" points for the particles suspended in the flowing water, as more bacteria are always found in the water obtained from such ice when melted than in the river water itself. He verified this by repeated experiments. He found, however, that when floating ice was melting in water, though it contained a few more organisms than water collected near the surface, it held far fewer than water taken from a considerable depth. In the Christiana water-supply he found some thirty species of bacteria, some of which occurred very seldom, some at certain periods of the year only, and a few all the year round. The amount of solids in the water varies from time to time, between 0.92 and 0.94 grams per litre, and traces of ammonia can usually be found in water during the time that it contains most bacteria.—*Supp. British Medical Journal.*

Purification of Drinking Water.—The burning question of the present age is how to obtain pure drinking water. In reference to this subject I would refer to a paper recently read by Dr. O. Froelich before the Electro-Technical Society of Berlin, May, 1891, in which he says "that the attempt to destroy bacteria by means of ozone has been effected with water from Berlin and neighborhood, and always with the most complete success. The sterilization test takes place, as is known, in the following manner: A few drops of the water to be tested are placed by means of a sterilized platinum wire on sterilized nutrient gelatine, contained in a sterilized reaction tube closed with a plug of cotton wool. If the water contains bacteria their cultures become visible in the form of opaque grains and tubercles, which continue growing. Even if by such experiments the sterilization of ordinary water is established, it is still doubtful if the less common bacteria, viz., those generating disease—typhus, cholera, anthrax, etc.—and their spores are destroyed. The question can only be determined by experts, although there is every every indication that it will be solved in a manner favorable to ozone.

"The oxonization of water acts besides in destroying noxious or disgusting substances or transferring them into harmless ones. Sulphuretted hydrogen is separated into sulphuric acid and water, ammonia becomes nitrate or nitrate of ammonia, iron is precipitated as ferric-hydrate, and finally, bacteria which generate decay are probably all killed. We have also good reason to assume that even the worst ordinary water can be made drinkable by means of ozonization. Disinfection by ozone has properties not appertaining to other methods of disinfection. In contradistinction to sterilization by boiling, ozonization is quicker and cheaper, and as opposed to disinfection by chemical means, such as sulphurous acid and chlorine, etc., it has the greater advantage of leaving no traces behind it in the water. Of course some ozone is absorbed by the water, but the amount is so insignificant that it is not perceptible to the taste. The ozone gas goes through the water, does its work—*i. e.*, kills the bacilli, probably completely, and leaves the water in the same condition in which it entered it.

"How much ozone is taken up by the water in passing through has not yet been established. Shortly, however, larger apparatus will be prepared which may be considered as models of water ozonization, from which can be determined the working power and cost of ozonization for any quantity of water.

"The solid earthy matter held in suspension by water is not affected by ozone; filtration will therefore be a necessity in the ozonization process. The filtering plants heretofore employed have served not only for the removal of the solid matter in suspension, but have also answered the purpose of collecting the greater part of the bacteria, and this takes place generally by means of the coating of algæ, which is formed on the layer of filtering material. The ozonization of the water, however, answers the purpose of the coating of algæ, but in a much more complete manner. The algæ cannot survive in ozonized water, as has been established by actual experiment, and therefore the laborious upturning of the filtering layer, which has hitherto been the practice in order to prevent the coating of algæ from becoming too thick, is done away with.

"The proper discussion of the ozonization of water can only take place after the cost of ozonization has been more exactly ascertained; nevertheless, so much is thus far apparent, that a fundamental discussion of this question cannot be avoided, particularly in cases in which good drinking water can only be obtained at great cost, bad drinking water, on the other hand, easily obtainable and by ozonization converted into good. The question further arises whether, generally considered, impure water, such as the waste water of towns and factories, cannot be fitly treated by means of ozone. In waste water the bacilli generating decay would in this manner be killed, the ammonia probably converted into nitrate of ammonia and the organic constituents further oxidized as far as possible."—*Electrotechnischen Zeitschrift*, 1891, Heft 26.

Common Neuroses.—In the second Harveian lecture Dr. Goodhart continued his subject of Common Neuroses. He dealt first with paroxysmal sneezing, and showed first how this always occurred in the neurotic, and next how closely connected it is with spasmodic asthma. Facts of this kind afford a strong argument against the probability of any good result accruing from severe local measures such as have been occasionally adopted of recent years. The so-called *angina clericorum* was next alluded to as not altogether above similar risks of being over-treated at the present day. This disease occurs in the over-worked; there is no serious disease of the throat, nothing that requires vigorous treatment of any kind, and all that is requisite is a good tonic and an honest assurance that there is nothing serious the matter. The usual treatment of such cases is to tell the patient that he or she has a delicate throat, and that they must go to the South, which is a sort of verdict of phthisis by *innuendo*. Cold catching is another neurosis, and is to be treated as are the others, by attention to the general conditions rather than by directing most of the attention to the trouble as it develops itself in this or that region. Spasmodic asthma is another of the same group. Asthma can be fostered and nursed into a very terrible disease, and very often is so, while on the other hand much can be done to mitigate the severity, if not to eradicate it altogether by making ourselves familiar with its history. And its history is that it occurs in those who show a well-marked nervous history. Several illustrations were given. Another point is that it so seldom, comparatively speaking, occurs in the lower classes; another, that it is probably represented in infancy by a gastro-pulmonary neurosis, and the treatment of both classes of cases is to be carried on on the same lines. The usual treatment of asthma by inhalations was strongly condemned, as leading in the bronchial mucous membrane to a parallel condition to that of the chronic snuffer, to a chronic hunger for stimulants. And even more than this, remedies of this kind are in the long run murderers in the garb of friends.

Circulatory neuroses were next discussed. The first of these mentioned was the being the conscious possessor of a heart. This condition is largely a nervous one, and it is much aggravated by our rather loose way of judging of a so-called weak heart. The relation of eurotic hearts to actual disease is, however, a very interesting subject, and one by no means free from difficulty. Graves's disease is another neurotic condition, and should receive, in the lecturer's opinion, a much more extended definition than is usually assigned to it. And of central circulatory neuroses neurotic faints were mentioned, and the remark made that they were very commonly attributed to heart weakness, and very seldom were actually so produced. Of peripheral circulatory neuroses Raynaud's disease was taken as a type, in the same way as Graves's disease, of a number of common conditions and disturbances of the periphery, and with these were linked on several diseases of the skin and joints which had interesting relations in this regard.

The lecture concluded by discussing the subject of angina pectoris. In the lecturer's opinion this disease is largely concerned with some fundamental neurotic disturbance in many cases. It has of late been concluded that the immediate cause is a state of high tension in the vessels. This

opinion was combated and considered from clinical experience not to be true, for such cases were by no means uncommon where neither disease of the heart or renal disease could be shown to exist. Its possible relation to pain in the left side, so common in anæmic women, led on to a passing allusion to the neurotic association of chlorosis.—*Med. Press and Circular.*

CURE OF MYXŒDEMA.—In the Freie Vereinigung der Chirurgen, in Berlin, on 12th October, 1891, Dr. R. Köhler showed a case of myxœdema which presented certain peculiarities. The patient was a woman of 48 years of age, who had become ill in the previous November with rigor and headaches. The headaches were always worse in the evenings. Gradually there came about a complete change of her whole nature, and she became practically demented. At the same time she ceased to perspire, and there developed a callous condition of the skin of her head, neck, and arms. There was also a return of swelling of the glands of the neck, from which she had suffered in childhood. In February myxœdema was diagnosed in Gerhardt's clinique. Later on, in another department, there was suspicion of a tumor present in the neck, being gummatous. On account of the doubtful nature of the case, an anti-syphilitic treatment was adopted, and this was followed by remarkably beneficial results, the patient recovering completely her bodily and mental health. The diagnosis is, therefore, made of syphilitic degeneration of the thyroid gland, and myxœdema originated by such degeneration is, therefore, to be considered a curable disease.—*Deut. Med.-Zeit.*

POLYURIA IN SCIATICA.—In the Société Médicale des Hôpitaux, on 9th October, 1891, MM. Debove and Rémond (of Metz) referred to some cases of sciatica in which they had observed polyuria beginning with the pain and increasing and ceasing with it. One of the patients had had an attack of sciatica some years before, and had noticed the same phenomena then, the quantity having been normal in the interval and the urine being otherwise normal. The quantity during the attack was 105 to 140 ounces in the twenty-four hours.

As to the explanation of this polyuria, it could not be regarded as simply due to reflex action induced by the pain, for it was not observed even in severe facial neuralgia. Certain physiological experiments are quoted in support of another theory—if the central end of the sciatic be excited in the dog, arterial tension is increased, and as a result there is an increase of the urinary secretion. Perhaps this may explain the polyuria in sciatica. Whatever value may be attached to this theory, the clinical fact is claimed to merit attention. At a subsequent meeting of the same society (16th October, 1891,) M. Lépine (of Lyons) recalled the fact that analogous observations had been made by his pupil, Dr. Hugounard, in 1880, and that he had established—

1. That moderate or strong stimulation of the sciatic diminishes considerably, or may even arrest the secretion of urine.

2. Slight stimulation of the same nerve augments the secretion. (Of this they had an apparent confirmation in the polyuria accompanying the neuralgia.)

3. If one of the kidneys is partly deprived of its nerves, the effect of the stimulation of the sciatic is less marked.—*La France Médicale.*

CHLOROFORM AS AN ANÆSTHETIC IN OPERATIONS ON THE NECK.—In a paper on the surgical treatment of tuberculous cervical glands, Mr. Edward Owen, the well known surgeon, makes the following remarks in support of his recommendation that a special anæsthetist should be engaged when anything like serious difficulty is to be anticipated:

"In the whole course of my experience I have never met with an instance in which any child died from the administration of chloroform. But, so far as my recollection serves, the two instances in which I have seen this calamity most nearly approached, were in severe operations for the removal of tuberculous glands from the neck. In each instance I thought the child was actually dead—in spite of treatment by hanging it up by the feet, so as to stimulate the anæmic brain, and at the same time resorting to slow and rhythmic compression of the chest by way of artificial respiration. In one of these cases the father, a medical man of the Edinburgh school of medicine, was administering the chloroform to his child. Acting on the Scotch plan, he was not watching the pulse during the operation; but I must say that he behaved splendidly during the crisis. In the other case the failure of the pulse was noticed by the family medical attendant, who was present during the operation, the anæsthetist having contented himself with watching the respiration only. What it may have been with those friendly associates of the experimental physiologist, when under anæsthesia, the monkey, the dog, and the guinea-pig, I know not; but I am sure of this, that in the human species the pulse is terribly apt to fail before the respiration. And I fear that the teaching of the Hyderabad Commission—that only the respiration need be watched—will be accountable for much faulty administration of chloroform with the inevitable result. It is more than possible that the sudden syncope of these two children during the operation may have been owing to the serious disturbance to which the lungs, vessels, and nerves beneath the base of the skull were necessarily subjected during the removal by enucleation or scraping of adherent masses of gland.—*Practitioner*, November, 1891.

SUNDAY FUNERALS IN PHILADELPHIA.—For many reasons we can assure those who are interested in sanitary reform that they have the hearty sympathy of Archbishop Ryan, of the Archdiocese of Philadelphia, and that, whenever required, they can count upon his earnest coöperation. The latest evidence of this fact we note in the order issued against Sunday funerals, which provides that *no permits* will be issued *for funerals* to take place *on Sundays, except in cases of extreme necessity.*

When, by reason of death from contagious disease, it is necessary to permit the interment of a body on Sunday, only a hearse or wagon and not more than three carriages will be allowed to enter the cemeteries.—*Annals of Hygiene.*

OYSTERS AND TYPHOID FEVER.—While we do not believe in creating unnecessary alarm, yet it is our duty to chronicle all that may be advanced in reference to the causation of disease; hence do we note that it is claimed in England that the son of the Prince of Wales contracted the disease from which he has recently suffered by eating oysters gathered from beds poisoned by sewage. In consequence of this scare the consumption of oysters in London has fallen off one-half. Our own belief is that the danger which this story relates is exceedingly problematical, yet it suggests to us the self-evident fact that the oyster, like anything else that is permeated with sewage, is not fit for human consumption. In our own country oyster-beds are usually located quite remote from centres of civilization, hence the popular bivalve is very unlikely to be contaminated by sewage.—*Annals of Hygiene.*

THE committee of the British Medical Association on legislation for the inebriate, has reported in favor of endowing proper authorities with power to compel inebriates to be placed in retreats where they will be treated by physicians employing the most approved methods.

Strength and the Hair.—During the past few weeks the discussion as to abundance of hair being evidence of strength, has again come up, some arguing that there was nothing novel in Samson's strength being in his hair, and others that as a rule the strongest men are least blessed with an abundant hair covering. There are necessarily exceptions to all rules, but most freaks of strength of modern times have luxuriant hair. There are five or six women now traveling with dime museum shows, lifting enormous weights with their hands and teeth, and performing other extraordinary feats of strength, and nearly all of them have magnificent heads of hair. Among prize-fighters the same rule applies, and although athletes generally keep their hair cut very close to the head, they usually have a very thick growth of hair and are seldom bald. Ancient history is delved into a great deal in the discussion, but the fact remains that the strongest men of to-day have in almost every instance not only heavy heads of hair, but also quite a substantial growth on the chest and arms. It may be that excessive bodily vigor and activity promote the growth of hair, or that the hair itself is an evidence of strength; but whichever may be the cause and the effect, the combination exists as a very general rule.—*Annals of Hygiene.*

Naphthaline as a new Tapeworm Remedy.—According to the observations of Mirovitch (*Mercredi Medical*), naphthaline is a powerful tæniacide, being superior to other anthelmintics both in the certainty of its action and in the absence of any toxic effect. For children, the author employs the following formula:

R. Naphthaline, 4½ to 7 grains.
Castor oil, ½ ounce.
Essence of bergamot, 2 drops.

—*Indiana Medical Journal.*

Removal of Garbage.—The subject of the removal of garbage is receiving a good portion of discussion. Don't remove it, any portion of it, so the smell of its decay will come back. It is a big undertaking for a big city to remove its garbage in such a way that it will give no offense. Dumping it in a water-course, on a lake or sea, is not getting rid of it to all purposes. In the first case it will wash down and become a pest about another town. In the second or third it will wash back to shore and breed a pestilence there. The surer way to handle garbage is to destroy it. It can then hurt no one, as it has no existence. Piled up in almost any place it will find some way of giving off the evils of its decay to the injury of some one. Destroyed, placed out of existence, it is gone, and there is nothing left. No one will be offended by it, and no means are left whereby it can come into the home or whereabouts of the people. It may not be the best way to serve garbage, but it is a safe way, and at the present time we know of no other that will prove any better.—*Sanitary News.*

The Influence of the Weather.—There are a great many people who say that the weather does not affect them at all; but the weather does affect everybody, writes Dr. Kellogg. When the barometer goes up our spirits go up, and when the barometer goes down our spirits go down. When the barometer is high we get more oxygen and the vital fires burn brighter, and when the barometer is low the reverse is true. It is no wonder that a person subject to rheumatism or neuralgia feels these changes in the weather with particular force. When the barometer rises the skin does more work, and when the barometer falls the skin does less work. When the skin does less work the kidneys, liver, and other excretory organs have to do the work.

But the changes in the weather are exactly what we need as stimulants to the system, and the reason why people who live in tropical climates lack in vigor and wilt down quickly under diseases is that they have none of the bracing effects which come from the changes of temperature.

These may be called a species of physical gymnastics. It is exactly like living a sedentary life in a climate in which there is no change.—*Annals of Hygiene.*

Rat-Tail Sutures.—About five years ago, while resident physician in the Presbyterian Eye and Ear Hospital of Baltimore, I saw Dr. Chisolm use fibers from the tail of an opossum for sutures in some of his eye-work. I thought such fibers a good substitute for silk, and spoke to my brother, Dr. A. M. Belt, about it. Shortly afterward a rat was caught at his residence; he had the tail skinned and soaked for several days in water, after which, upon slight manipulation, it separated into perhaps a hundred fibers, each about eight inches in length. These were placed in alcohol and presented to me, upon request, for use in eye surgery. I found the fibers strong and much finer than those from the opossum tail, or any other animal suture, and have been using them quite extensively in suturing the conjunctiva in pterygium operations, and in advancing the recti muscles in correcting strabismus.

These sutures have been most satisfactory. As soon as moist they become agreeably soft to the eye, and have never to be removed, while silk sutures are rough and irritating as long as they remain in the eye, and their removal is somewhat painful. Patients from a distance are often detained five or six days to have the silk stitches removed, when rat-tail sutures might be used and the patient allowed to depart immediately. These sutures will no doubt be found useful to the general surgeon and gynecologist when they need strong and fine animal sutures. About once a month, for two or three days, I soak the fibers in a corrosive sublimate solution (1:5000), and as I have never had any trouble whatever from their use, I think it probable that this suffices to render them aseptic.—E. Oliver Belt, M.D., in *The Medical News.*

A New Method of Tenotomy.—The following are the steps of an operation which was performed in a case of post-hemiplegic contracture of the flexors of the fingers, by W. W. Keen, of Philadelphia. An incision was made, beginning just above the pisiform bone, and extending three inches obliquely upward, its upper end being over the tendon of the flexor carpi radialis. All the flexor tendons having been exposed, each tendon was first split along the middle for an extent of one inch and a quarter, and then, at the two ends of this incision, section of the opposite halves of the tendons was made; that is to say, the radical half of the vertical slit, and the ulnar half at the other end. The long, loose ends of the divided tendon were then made to glide on each other in a vertical direction over a distance of about half an inch, and sewn together by two transverse sutures. The tendon was thus lengthened to the extent of three-quarters of an inch.—*Med. Age.*

A New Method of Measuring the Capacity of the Stomach.—At the recent Italian Medical Congress, Forlanini (Rif. Med., October 24, 1891) proposed a new method of ascertaining the presence of dilatation of the stomach. He passes an œsophageal sound into the stomach, and by its means distends the organ with air, in no case using a pressure of more than 7 or 8 centimetres of water; the air is then withdrawn by means of an aspirator, and its volume ascertained. By always using the same amount of pressure when injecting, the effects of any treatment on dilatation of the stomach can easily be ascertained.—*Med. Age.*

Doctors in the Legislature.—"In no European legislature," says *The Lancet*, "are there so many distinguished surgeons and physicians as in that of Italy. One of the best

of her prime ministers was the 'general practitioner' of Casella in Piedmont, Giovanni Lanza, under whose wise and well-timed policy she transferred her capitol from Florence to Rome, while statesmen of cabinet rank in nearly every administration have been drawn from her men of light and leading in medicine, prominent among whom may be mentioned one of her ablest Ministers of Public Instruction, Dr. Guido Baccelli. Nearly every year she adds to the number of her Senators one or more of her chief professors of the healing art, the latest accession to these 'Patres Conscripti' being Dr. Enrico Bottini, who holds the Chair of Obstetrics at Novara. Professor Bottini was for some time Lecturer in Clinical Medicine at the University of Pavia, where he gave such proof of general as well as special ability that he was elected Deputy to the Italian Chamber. From there he has been raised to the Senate."—*Medical Record*, Dec. 26, 1891.

THE TREATMENT OF THREAD-WORMS BY NAPHTHALINE.—Minerbi has used naphthaline in the treatment of thread-worms. Eleven children infected with this parasite were cured by its use in less than eight days. The formula employed was the following:

Naphthaline, 1 gr. to 1.50 gr.
Olive oil, 40 to 60 grs.
For one enema.

In the adult larger doses must be used.

Naphthaline, 5 to 6 grs.
Olive oil, 70 to 80 grs.
For one enema.—*Canadian Lancet.*

TREATMENT OF EARACHE.—The acute pain accompanying otitis is often relieved by the following mixture:

Chloroform, 1 gr.
Olive oil, 8 grs.

Twenty to 40 drops to be poured into the auditory canal, which is then closed by a little plug of cotton wool.

In cases of pain due to furuncle of the auditory canal, the relief is even more complete and immediate if, for the previous liquid, the following is substituted:

Menthol, 1 gr.
Olive oil, 20 grs.

—*Gazette des Hôpitaux.*

THE ROUTE OF RESPIRED AIR THROUGH THE NOSE.—R. Kayser, after numerous experiments upon the cadaver and the living subject, asserts that during inspiration in the normal nose, the bulk of air passes along the septum, above the inferior turbinated body, describing a semicircle in its course, and extending upwards nearly to the roof of the nose. Although at variance with commonly accepted opinions, he has demonstrated his work so clearly as to settle the many controversies of reputable authorities regarding this question. According to him, the air enters the nose perpendicularly to the plane of the nares; the continuing aspiratory movement gives it a backward direction, so that the real direction must be the resultant of the two, thereby directing the current through the pars olfactoria, instead of through the pars respiratoria; and settles the mystery regarding the appreciation of smell in quiet breathing. All nasal changes which do not influence the normal direction of the air current need have no restricting effect upon breathing. This will eliminate obstruction in the lower passage for consideration here. Furthermore, this upward direction of air favors the supply of warmth and moisture; the route is made longer and narrower. These attributes serve to filter the air for the lungs. —*Archives of Otology*, Vol. xx, No. 1.

DEPILATORY POWDERS.—Dr. Clasen says (*Monatshefte f. Prakt. Dermat.*) that among the best depilatory powders are sulphohydrate of sodium and sulphide of barium. As to the sulphohydrate of sodium, he says that, used as a paste, 1 part to 8 of water, and allowed to remain on for a very short time, it acts well. But it deteriorates very rapidly, and is dangerous to give to a patient, as it is quite capable of producing scars. The sulphide of barium is a safer powder for the purpose. It may be used by mixing 50 parts of it with 25 parts each of starch and oxide of zinc. This is mixed with water, so as to form a soft paste, and spread upon the face. After ten minutes it is scraped off, and leaves a smooth skin.—*Nat. Druggist.*

FERMENTATION OF BREAD.—M. L. Boutroux asserts that the fermentation of bread consists essentially in a normal alcoholic fermentation of the sugar which already exists in the flour. The yeast plays a double part in the process—it produces a disengagement of gas which causes the dough to swell, and it prevents the bacteria, which are parasitic on the starch grains, from developing, and thus making the dough sour and dissolving the gluten. M. Boutroux finds in the yeast three distinct microbes, two bacilli and a bacterium, but concludes that they play no direct part in the process of fermentation. If they are of any service at all, it is simply in the production of the fermentable substance; that is, of the sugar.—*Nat. Druggist.*

CIVILIZATION AND PAIN.—Civilized man has of will ceased to torture, but in our process of being civilized we have won, I suspect (says Dr. S. Weir Mitchell), intensified capacity to suffer. The savage does not feel pain as we do; nor, as we examine the descending scale of life, do animals seem to have the acuteness of pain-sense at which we have arrived. *Annals of Hygiene.*

PHOTOGRAPHS OF THE BACILLUS LA GRIPPE were presented to the Association Française pour l'Avancement des Sciences by M. Teissier, of Lyons, and mentioned in *Le Progrès Medical* of October 3. This culture and inoculations with it are very peculiar and interesting. It produces all the various symptoms of la grippe, and even pus.

For the relief of nausea and vomiting consequent on etherization, one of the best remedies is chloroform, gtt. iv or v, with gtt. ii or iii of vinegar of opium, given two or three times a day. A hypodermic of morphine, gr. one-sixth, after the operation, controls the nausea, puts the patient to sleep, giving the stomach and nervous system time to recover themselves.—Brinton, in *Times and Register.*

CREASOTE AGAINST TUBERCULOSIS.—Prof. Dr. Sommerbrodt (Breslau) claims creasote in large doses (15 grs. to 1 drachm daily), to be the best remedy against pulmonary phthisis. He impresses the necessity not to allow the pharmacopœia to interfere with the doses, as smaller doses will have no influence on the progress of the disease. He quotes nine cases of tuberculosis which were treated with and cured by this drug. In six of these cases, no signs of disease of lung were found after one, two, three, four, six or seven months; still, he continues for six months to give 15 grs. daily. Three cases of tuberculosis in an advanced stage showed, after this treatment, such improvement that they consider themselves well.

Sommerbrodt uses capsules, containing each 1½ grs. creasote, combined with cod-liver oil. If the expense is too large, the patient may use Hopmann's mixture (creasote 1 part, tinct. gentian 2 parts), and take of it 20 to 80 drops three times daily. The main value of this drug lies in the fact that the patient is not obliged to seek climatic influences.

Regarding the effect of this drug on the stomach, he found that belching may be caused for the first few weeks, but this soon disappears. He has given to some patients 5,000 to 20,000 creasote capsules, and their appetite remained excellent, this proving that creasote does not hurt the stomach, regardless of Klemper's opinion to the contrary.—*Berliner Klin. Wochenschrift.*

Peroxide of Hydrogen in the Treatment of Puriform Cavities and of Fistula.—Dr. H. Graff, a military surgeon of Christiana, publishes in the *Norsk Magazine* the result of his experience of peroxide of hydrogen in the treatment of abscesses which do not admit of being laid completely open so as to subject them to antiseptic treatment, and of fistulous sinuses offering the same difficulty. The author recommends, in preference to all other antiseptic fluids, irrigation with a 15-volume solution of peroxide of hydrogen, which he employed with the greatest success at the Royal Hospital of Christiana. The great development of gas which takes place in consequence of the decomposition of the peroxide when coming in contact with blood or pus, removes the pus very effectually. The irrigation, followed by proper antiseptic dressing, causes a considerable decrease of the discharge, and healing takes place in a remarkably short time. In the case of cachectic patients, when granulation is slow, Dr. Graff recommends that that the irrigation should be occasionally changed for injections of balsam of Peru and ether. The treatment is especially valuable in cases of indurated wounds with puriform cavities. It is, of course, necessary to make due provision for rapid and free drainage, as the development of much gas may otherwise produce serious pressure.

On the Local Treatment of Strangulated Hernia by Ether.—Dr. Finkelstein gave in 1882, from his own practice, sixty-three cases of strangulated hernia. Of these five yielded to taxis. In fifty-eight he employed "local etherization," taxis having failed, and of these fifty-eight cases fifty-four proved successful. Of the four unsuccessful cases two underwent surgical operations and two died refusing operative treatment. The method is simplicity itself. The patient is placed on his back, with the hips slightly raised and legs flexed, and then every ten minutes or a quarter of an hour a tablespoonful of sulphuric ether is poured on the hernia ring and tumor. The application of ether is carried on for, as a rule, from three quarters to three hours (or even four hours) until the tense tumor relaxes and lessens a little. As soon as this occurs, and if the strangulated bowel does not reduce itself, several slight efforts are made to reduce it, and almost "always" it slips with a gurgle and amazing ease into the belly cavity. If the omentum alone be strangulated, the ether method is absolutely useless. As the ether method causes an after feeling of heat and burning on the penis, labia, etc., Dr. Koch (America) protects these and other sensitive parts by previously smearing them with olive oil, and, in addition, covering them with pledgets of cotton wadding. The ether seems to act thus. Richter, Velpeau, and others, hold that strangulation may in some cases be caused by spasm of the abdominal orifice. In these cases the ether may act by relaxing the spasm and thus reducing the bowel movable. That may be so, our author remarks, but he himself lays most stress on the property ether has of producing intense cold by rapid evaporation. The intense cold condenses the gas in the bowel, and by so doing diminishes its calibre. Possibly, also, the cold stimulates the peripheric nerves in the bowel sheath, and excites it to natural peristaltic action, which is more likely to empty it of gas, fluid, and semi-fluid contents than the rude manipulations in taxis. —*Medical and Surgical Reporter.*

The Extraction of a Hairpin from a Woman's Bladder.—In the *Gazzetta degli ospitali* for November 15th Dr. Caldani describes an ingenious procedure that he has resorted to for this purpose. He made a small hook of iron wire, and, passing it into the bladder through a canula, seized the hair-pin with it, and then drew the hook slowly out through the canula by means of a so-called mechanical corkscrew. The hair-pin was, of course, so changed from its original shape, being newly doubled by the traction, as to pass through without injury to the bladder. He remarks that the materials for improvising such an apparatus are to be found in almost any house.—*N. Y. Med. Jour.*

The Operation for Cleft Palate in Two Sittings.—In a note read at one of the summer meetings of the *Société de mèdecine de Paris*, published in the *Union médicale* for Nov. 21st, M. Polaillon recommends this procedure as being less fatiguing to both patient and operator. At the first sitting he traces the lateral incisions, frees the mucous membrane, scrape the bone, and checks any hæmorrhage there may be by compression, sometimes with a hæmostatic forceps. On the next day or the day after he refreshes the flaps, which are now somewhat swollen and tend to approach the median line, and then inserts the sutures, with the great advantage that the hæmorrhage is trifling. He thinks this method insures success even in the most difficult cases.—*N. Y. Med. Jour.*

DOMESTIC CORRESPONDENCE.

Diphtheria.

To the Editor:—In reference to your editorial remarks on diphtheria, in The Journal of December 19, 1891, we desire to say a few words.

Of diphtheria you say: "Now that it has been settled beyond all cavil that the *false membrane* (italics mine) is the place of formation of the poisons which produce all the symptoms of this disease, it is clear that the time for interference is at the beginning of the trouble, and not after great extension of the membrane has made its destruction almost impossible. Therefore the time for diagnosis is early, and the first appearance of a false membrane in the throat, no matter how slight, no matter how mild, is the time to say 'diphtheria,' and to act accordingly."

Now this cautious policy is all very good, as far as it goes—and it goes a long way—but it does not cover the case, and is liable to mislead, in a very important respect.

For the *first* palpable manifestation of diphtheria is *not*, in near all cases (especially in *severe* epidemics), an appearance of *false membrane* in any visible locality.

For it is well known, that cases like the following occur in practice: A more or less severe epidemic of diphtheria is prevailing; a hurried night call brings the doctor to the bedside of a baby, who is just over a convulsion (was thought to be well yesterday); maybe the patient, if old enough, is found playing with toys when the doctor arrives, or if long enough over the fit, is asleep. Now listen to that sleep. Hark! hear ye that suspicious rattling—the flapping of the *paralyzed* uvula—more ominous than the startling tail-music of the crotalus horridus, for 'tis the death-knell of a precious life. Fine moist, crepitant râles are usually to be heard over the lower dorsal thorax. Little or no fever. The *sage femmes* say "Oh, 'tis only a *worm* fit—nothing more." Nothing abnormal can be discovered in or about the *throat*, save the results of paralysis. The patient may be—sometimes is—*apparently* a little better next morning. The doctor carefully examines the throat again, in good daylight; no *false membrane* to be seen anywhere, or any abnormal *appearance* about the throat, inside or out. Such cases may progress more or less rapidly; in some, there is a comparatively brief lull in the storm, just after the first convulsion, but usually only for a few hours. These baby cases, if as much as a year or two old, may live four to six days, and if so, the disease may creep up, so to speak, and the false membrane spread over the throat, and probably the naso-pharyngeal space, and the patient soon dies, usually in great distress. But if these baby patients are only a few months old, they usually die

within forty-eight hours from the time of the first convulsion; and in many such cases, death occurs before any false membrane is visible anywhere.

And were it not for the characteristic paralysis—and the prevailing epidemical influence—the diagnosis might be, pulmonary œdema and nervous exhaustion; for it is well known, that rapid exhaustion, from *any* cause, strongly tends to produce convulsions. All the cases of diphtheria that *begin* with *paralysis* or *convulsions*, die, inevitably, do what we will. And we have met with another type of diphtheria, in which the appearance of *false membrane* is *not* the initial, or even an early, manifestation. This type of cases are usually 4 to 8 years of age. They often begin by complaining of weakness of the legs; knees get so weak patient cannot walk. Solid food may be masticated, but patient cannot swallow it, owing to paralysis of the muscles of deglutition. Usually no fever; pulse weak and slow, surface pale; temperature subnormal in some cases. Within twelve to twenty-four hours, many such patients have *convulsions*, which may recur more or less frequently, until death closes the painful scene—for this class of patients also, all inevitably die; though some of this latter class live long enough for the characteristic false membrane to form in the throat and contiguously.

Trousseau tells us—and we have often verified the fact—that a high degree of *albuminuria* is a prominent accompaniment of all these paralytic and convulsive forms of diphtheria. But a knowledge of this important pathological fact has not enabled us (in this class of cases) to make our *curative* efforts more effective; although we strongly believe that such knowledge could be utilized to valuable purpose, in devising prophylactic means and measures.

But we do not for a moment presume that we have told of anything *new*, by briefly referring to the types of diphtheria we have mentioned; for such knowledge has long been common property.

Trousseau, who has given us the best description of the various forms of diphtheria, specially describes the paralytic and convulsive forms of this direful disease, and tells us that "the manifestations of diphtheria are extremely variable; and when it *begins* in *severe paralytic* or *convulsive* form, is *fatal*."

Q. C. SMITH, M.D.

Austin, Tex., December, 1891.

"The Methods of Medical Instruction" and the Pan American Medical Congress.

To the Editor: The thoughtful editorial in the JOURNAL for to-day (January 16) is full of suggestions. The time has come when the *art* of *medical teaching* must be taught. It is folly to suppose that because a man is a physician he is, by that token, a competent medical teacher, too. There is a vast difference between a *practitioner* and a *teacher*, at least in the abstract. The qualities are frequently combined, but we all know brilliant practitioners who would be laughing stocks before medical classes, and many of us know successful teachers who would be but bulls in china shops were they to invade the sick chamber. But whoever may choose to become a teacher of medicine, let him first learn how to teach—let him study some *method of conveying instruction*. How many Deans of medical colleges are there who have any comprehension whatever of the *technique of teaching* in such departments as histology, bacteriology, pathology, physiological chemistry? And what man, destitute of such knowledge is fit to execute the duties of executive officer of a Faculty? How can he know when members of his Faculty are properly discharging their duty?

The idea seems to have been grasped by the National Committee on Organization of the Pan American Medical Congress, one of the twenty-one sections of which, as announced, being devoted to "Medical Pedagogies." The title is felicitous and, of itself, is notice to platitudinous addle-pates that the old fashioned dissertation on "higher medical education" may be left on the dust covered shelf. The object is, evidently, not to air Utopian dreams, but to show how knowledge is imparted. It promises to be a grand event. Deans of colleges ought to be there in numbers and so ought all men engaged in the responsible task of teaching medicine in any of its departments. The bacteriologist, the pathologist, the histologist, the chemist, will each show the best features of his particular method of teaching; the oculist, the laryngologist, the gynecologist will each show how *he* teaches his students, demonstratively, if not clinically; even the strictly didactic teacher—the old fashioned preacher of medicine—will no doubt be accorded a hearing. Dr. Roosa, the chairman of the Section, will without doubt run a model medical college in Washington for four days in September, 1893. The event will be a milestone in the march of progress.

REFORMER.

BOOK REVIEWS.

INCIDENTS IN THE LIFE OF A PHYSICIAN. By JOHN SINGLETON, M.D. Hutchinson, Little Collins Street, Melbourne, Australia. 1891.

This is the composition of a philanthropic worker at the age of eighty-three years. For fully sixty years, Dr. Singleton has devoted much time in visiting jails and in the rescue of criminals; forty years of which time he had spent in Victoria. The book is made up of the most striking instances of attempted relief or rescue, jotted down at leisure moments.

BULLETIN OF THE HARVARD MEDICAL SCHOOL ASSOCIATION. Number 1. Boston: G. H. Ellis. 1891.

This pamphlet of fifty pages marks the somewhat tardy organization of an alumni association, at the Athens of our Eastern slope, of the oldest American university's medical department. The President, Dr. J. R. Chadwick, delivered the principal address at the first banquet, in which he points out the advantages ensuing from university affiliations to professional education. He concluded his remarks by offering the sentiment from the Talmud, which calls to mind the first aphorism of Hippocrates, "The time is short, the work is great, the reward is also great, and the master presses: it is not incumbent upon thee to complete the work, but thou must not therefore cease from it." Dr. Oliver Wendell Holmes sent a letter of regrets, which is printed. In it he speaks of himself quaintly, as being the sole survivor of that primeval Faculty of medicine which he entered in 1847. He says: "I know that the members regard me as a relic of the past, not without a certain value as a fragment of antiquity. In that point of view, I am not merely a rarity, I am a unique specimen, and have an adventitious market price, *like one of those rare cents* for which collectors pay a premium. Half-worn-out old copper as it is, its scarcity makes it worth a dime, or perhaps a dollar." Dr. Holmes then sketches the Faculty of seven of 1847, the men by whose side he worked when the classes were small and the accommodations meager, as compared with the grander status of the present day. Dr. Holmes is intensely loyal to the Healing Art, and he is proud of his past connection with the Harvard School; he refuses no legitimate opportunity to draw his pen in behalf of either of them.

THE sun never sets on the soil of the United States. When it is 6 o'clock at Attoo Island, Alaska, it is 9:36 o'clock A.M. the next day on the eastern coast of Maine.

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MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, JANUARY 23, 1892.

A SECRETARY OF PUBLIC HEALTH.

With the marvelous growth of our country, there has taken place a corresponding change in many of the conditions and functions of our methods of government.

The growth of sanitary science, and a knowledge of hygienic conditions, as practically understood by the medical profession and the people, dates almost wholly within the latter half of the present century. Within that period there has been a continuous immigration of not only thousands, but of actual millions, of people, from the countries of Europe to our land.

Unfortunately, of late years, this overflow is not made up of the average of the citizens of Europe, but is largely composed of defective, immoral and ignorant people.

The ability of the population of this country to absorb and assimilate, reform and educate the masses who seek new homes with us, is one of the wonders of our wonder-land.

To absorb, assimilate and educate those who come to us with healthy minds and healthy bodies, adds to the strength of our body politic; but to take in those who are insane, criminal and physically diseased, is to invite outbreaks of National indigestion, a knuckling and knotting of our inwards that will surely produce convulsions and dire distress.

To obviate so threatening a condition of affairs, the time has come when intelligent supervision of immigration must be exercised by the very head of our Government. In order to accomplish so desirable a purpose as this, it is undoubtedly necessary that the President should have the added strength of a Secretary of Public Health as a member of his Cabinet.

This office is as essential as that of the Attorney-General or Secretary of Agriculture. It is just as necessary to protect the Nation from an invasion of diseased and immoral people as from a foe that is armed with rifled cannon and dynamite guns.

We have seen how rapidly our land recovers from the devastation of a protracted war. While a vaccination of leprosy, yellow fever or anarchy would, in the course of years, be infinitely more disastrous in its eventual results.

The prosperous condition of our Nation makes us nearly shut our eyes to this threatening peril. Congress is appealed to for the enactment of a law creating a Secretary of Public Health. We hope that every physician who receives this JOURNAL will take one hour in which to write to his Congressional Representative and Senator, and ask their favorable and active support of this measure. Direct their attention to the filling of American hospitals, infirmaries, insane asylums, and other public and charity institutions, with recent immigrants, and to the fact that from these people spread disease and death.

Tell them that a Cabinet officer of Public Health would exercise a great power in the control of immigrant-carrying vessels. That such an officer would be able to formulate laws and regulations which would prove of the utmost value. Direct their attention to the rapid growth of associate charity organizations in all our large cities and centers of population, whose chief function is to provide for these very immigrants. Tell them of the addition to the tax duplicates in every city because of the immoral, diseased, and defective classes of Europe that more than half fill our jails, workhouses, infirmaries, and asylums. Tell your Congressman and Senator this, and tell it to them so strongly that they will not forget it. If you can't do this in one hour, take two or even three, and the time will be well spent.

If our language seems strong, just think for a few moments of the gratuitous medical professional work done every month, week, and year for these people.

A Cabinet officer of Public Health would be a boon as affording very great relief to physicians as a body of professional men, and also to philanthropists and tax-payers. This is a case of protection, pure and simple.

THE METHOD OF ZADIG IN MEDICINE.

In one of his inimitable addresses, recently given, T. LAUDER BRUNTON took up the story of Zadig and applied it to medicine. The story of Zadig as briefly told by BRUNTON is this:

Zadig was a young man who, disgusted with life, retired from Babylon to a lonely place on the banks of the Euphrates, and there studied animals and plants until he saw a thousand differences where others could see only uniformity. One day one of the queen's eunuchs, followed by a band of officials, came hastening past, and asked Zadig, "Have you seen the queen's dog?" Zadig modestly answered, "A bitch, I think, not a dog." "Quite right," said the eunuch, and Zadig continued, "A very small spaniel, has lately had puppies, limps with the left fore foot, and has very long ears." "You have seen her, then," said the eunuch. "No," said Zadig, "I have never seen her and did not even know

that the queen had a dog at all." At the same time the finest horse in the king's stables ran away, and the chief huntsman, in seeking it, also made inquiries of Zadig, who said, "A first-rate galloper, five feet high, small hoofed, tail three feet and a half long; cheek-pieces of the bit are of twenty-three carat gold, and the shoes silver." "Where is he?" cried the chief huntsman. "I have not seen him, and never heard of him before," said Zadig. Naturally enough he was suspected of having stolen both the spaniel and the horse, was tried and condemned; but no sooner was sentence pronounced than both the missing animals were found. Zadig was then asked to explain how he knew so much about them without having seen them, and this he said was the way: He noticed one day in the sand the tracks of an animal which he easily recognized as those of a small dog. Long faint streaks on the ridges of sand between the footprints indicated that it was a bitch with pendent dugs, showing that she had had puppies shortly before. Other marks on the surface of the sand close to the prints of the fore feet indicated that she had very long ears, and one of the footprints being fainter than the others showed that she was slightly lame. As for the horse, the marks of his hoofs were all equidistant, showing that he was a famous galloper. In a narrow alley the dust on the trunks of the trees was disturbed at three feet and a half from the middle of the path; this showed the length of his tail, which had swept the trees as he lashed it from side to side. Branches of the trees met overhead at a height of five feet, and under them were some newly-fallen leaves, showing that the horse had brushed against them, and was therefore five feet high. As to his bit, he had rubbed it against a stone which Zadig recognized as a touchstone, and his shoes had left such marks upon pebbles of another kind as showed that they were made of fine silver.

Teaching by fable has long been a favorite means of emphasizing a particular thought, principle or procedure, but, like the proverb, the fable is at once too sweeping and too incomplete. It seems, therefore, rather paradoxical to use the fable to illustrate completeness, and the fable of Zadig is not without the fault of shallowness.

As the observation of the most minute differences must always precede classification, so must a complete analysis precede a philosophical conception of relations.

The method of ZADIG is singularly complete in its observations of details, many apparently insignificant. It is remarkable in the genius which permitted a grouping of apparently dissociated factors, and the elaboration upon them of a theory consistent with them all. But it is very difficient in its completeness because of its unwarranted accuracy. It was certainly bold and illogical to assert that all the phenomena connected with the horse had been produced by that animal. But how often do we find this same mental process followed in medicine; *post hoc* is too often recognized as *proptu hoc*.

A patient is presented to a class and told to extend his right arm. The wrist drops, and the class diagnosticates lead poisoning. He then extends the left arm, and with it the left hand. The theory of lead poisoning is at once dropped. ZADIG's thoroughness was not followed.

An old man is brought into a hospital in a state of coma; no history accompanies him; he is examined; his heart and lungs are found to be normal; his temperature is normal; his pupils react normally. There is no alcohol upon his breath; no evidence of a narcotic poison can be found. One arm is less flexible than the other: His urine, obtained through the catheter, is found to be heavily albuminous. The diagnosis of uremic coma is made, and treatment instituted accordingly. At the autopsy next day large white kidneys are found, which clearly explain the albuminuria; but an extensive hæmorrhage in the brain is also found. The case occurred in the practice of the writer. The method of ZADIG was not followed. The insignificant stiffness of the arm found no place in the diagnosis, and sufficient account was not taken of the patient's age.

An infant, after a severe and exhausting diarrhœa, was greatly emaciated, and had a very marked enlargement of the mesenteric glands. During convalescence fever again appeared, and serious brain symptoms. These symptoms were: sluggish pupils, irregularity of the pulse, irregularity of respiration, finally reaching a typical CHEYNE-STOKES character —considerable drowsiness, hydrocephalic cry, and vomiting. In view of the preceding conditions, and of the condition of the abdominal glands, a diagnosis of tubercular meningitis was made. After a week's time improvement set in, and ultimately complete recovery ensued. This case well illustrates the deficiencies of the ZADIG method. All visible conditions had been taken into account, and a logical conclusion made. But there was failure to recognize the unseen influence of the prevailing influenza.

Diagnosis in medicine should aim at as great accuracy as possible, but the inherent deficiencies of the methods should be remembered. Most frequently diagnoses of generic rather than a specific type should be made. And as a rule such diagnoses are quite sufficient to guide a rational treatment.

The exact methods of the laboratory and of physical diagnosis often lead to very definite conclusions which are only partially correct or even sometimes entirely wrong. There are no pathognomonic signs or symptoms in disease, and because of this, routine methods can never supply the place of good judgment.

Between the scientific investigation of disease for the advancement of knowledge and the establishment of principles on the one hand, and the actual management of sick people on the other, a vast difference exists. The scientist can only deal with that which is positively established. The practitioner must deal with much which is not established. An attempt to be scientifically accurate in all diagnoses requires that much matter which is practically useful, but highly unscientific because not proven, should be ignored. The man who limits himself to strictly scientific methods, can be but a mediocre practitioner in the present state of medical knowledge. On the other hand the man who ignores the known scientific methods, limits his usefulness by the incompleteness of his diagnosis, and the consequent routine nature of his practice.

Not infrequently very brilliant specific diagnoses are made upon data sufficient only for a generic diagnosis; subsequent events confirm these diagnoses. They should always be regarded as excellent guesses, guided indeed by good judgment, but they are not evidence of superior knowledge.

The "old woman" will make a positive diagnosis, perhaps correct, where the well-informed physician would hesitate to give his opinion.

We once saw an example of a brilliant diagnosis which proved to be correct, but might not have been. A child was brought into a dispensary with the ends of all its fingers swollen from some recent injury. The clinician, without permitting the mother to make a statement, placed the child's hands on the edge of a table, and showed that the inner edges of all the swellings made a straight line. He then asserted that the injury had been caused by a window sash falling upon the fingers. His guess was correct.

The method of ZADIG should be imitated so far as it teaches accuracy of observation of the minutest detail. Its tendency to conclusions more accurate than the information obtained will justify, should be avoided.

THE PAN-AMERICAN MEDICAL CONGRESS.

This great movement for the unification of the medical profession of the Western Hemisphere is progressing rapidly. The published list of the International Executive Committee indicates that the organization is being developed in a very systematic manner. That a distinguished medical man—and the list embraces only prominent names—should have been selected in the various countries from Behring Sea to the Straits of Magellan and from Labrador to Terra del Fuego, and that nominations for various offices should have been received from a majority of these gentlemen, and that these nominations should have been confirmed and commissions issued and acceptances returned, all since last May, shows not only vigorous administration at this end of the line, but what is of perhaps more importance, hearty coöperation on the part of the profession in the various constituent countries. The correspondence that was laid before the Committee on Organization at St. Louis, last October, indicated enthusiastic appreciation of the movement. Our exchanges from both Canada and Spanish America contain editorials favorable to the Congress.

This movement will command the patriotic support of the entire profession of the United States. It was inaugurated in open session of our representative National Association. The Committee on Nominations, consisting of one for every State and the various branches of the Governmental medical service, appointed a Committee on Permanent Organization, consisting of one for each State, Territory, and the Army, Navy, and Marine Hospital service. This committee met pursuant to public announcement, elected its own officers, and adjourned to meet for purposes of organization at St. Louis last October. At that meeting the appointment of an Auxiliary Committeeman in each local medical society in each State was confirmed. All nominations for officers of the Congress and for place of meeting were on the roll-call of States. In this branch of its work the committee practiced extreme care in seeing that no important section of the country was either ignored or treated unfairly. The result, so far as a result was realized, showed that good men can be found in every part of the United States. The committee further demonstrated its disposition to act fairly by adjourning, that it might complete its work with more deliberation at Detroit next June. There are many officers of both the General Congress and the sections yet to be elected.

This brief résumé of the work as it was shown at St. Louis indicates that this Congress movement is one thoroughly in touch with the rank and file of the profession of the United States. The publication of the promised official bulletins will doubtless show that it sustains similar relations to the profession in other American countries. In both instances we prophecy for the Congress loyal support and zealous coöperation.

RELATIVE FREQUENCY OF DISLOCATIONS.—At a recent lecture at Rush Medical College, Chicago, Prof. John B. Hamilton gave the following statistics from the annual reports of the U. S. Marine Hospital service from 1874 to 1890, inclusive: Total number of injuries reported, 46,496; total number of dislocations reported, 884. [Prior to 1878, these injuries were not classified in the reports, and the report for 1877 was never published.]

	PART INVOLVED IN 598 CASES.										
	Maxilla.	Clavicle.	Shoulder.	Elbow.	Patella.	Wrist.	Hip.	Knee.	Ankle.	Vertebra.	Miscellaneous and Unclassified.
	6	43	308	70	19	34	30	26	56	6	286
Approximate per cent. to whole number classified	1.+	7.+	51.+	11.+	3.+	5.+	5.+	4.+	9.+	1.+	

BEQUESTS OF MEDICAL MEN TO THE CAUSE OF MEDICAL EDUCATION.—The Johns Hopkins University library will be enriched by the bequest of the late Dr. Frank Donaldson, of Baltimore, of his collection of laryngological and clinical works, over two thousand volumes in all.

Under the will of the late Dr. Buckminster Brown, of Boston, the University of Harvard will receive two donations. The medical school will be offered the sum of $40,000 for the purposes of founding a

chair in orthopædic surgery, which shall bear the name of the donor, and his medical books will be given to the college library.

The late Dr. Lippert, of Berlin, left to the medical faculty of the university of that capitol the sum of $4,500 for the endowment of a prize, to be competed for by advanced students in surgical pathology and hygiene.

In Vienna, the widow of Professor von Bamberger has carried out the wishes of her husband in establishing a fund, valued at $8,500, for the benefit of poor deserving students at the University of Vienna, irrespective of creed or nationality.

THE JACKET OF JAPANESE BAMBOO.—In the *Se-I-Kwai Medical Journal* for March 28, 1891, appears a report on the use of bamboo, as a substitute for plaster-of-Paris, in the construction of jackets for the treatment of spinal disease, rickets, and the like. The paper was written by Dr. K. Kashimwra, of Tokio. He formed the opinion that the plaster jacket was less suitable for the people of his nation than for some others, principally for the reasons that the Japanese have the habit of taking a body-bath daily, and that the weight of the plaster was not well borne by them. After making trial of various materials, he finally settled down upon bamboo in strips, quilted or woven into the form of a cuirass. Bamboo is plentiful and cheap in Japan, easily shaped or curved when softened by the warmth of a fire, and retaining its shape after it has cooled. He has already employed it in a number of cases and has found it a good substitute for plaster in spinal caries.

THE INTERNATIONAL EXECUTIVE COMMITTEE OF THE PAN AMERICAN MEDICAL CONGRESS.—The committee on organization of the Pan American Medical Congress at its meeting at St. Louis last October, elected the following International Executive Committee: The Argentine Republic, Dr. Pedro Lagleyze, Beunos Ayres; Bolivia, Dr. Emelio Di Tomassi, LaPaz; Brazil, Dr. Carlos Costa, Rio de Janeiro; British North America, Dr. James F. W. Ross, Toronto; British West Indies, Dr. James A. De Wolf, Port of Spain; Chili, Dr. Moises Amaral, Santiago; United States of Colombia, Dr. P. M. Ibañez, Bogota; Costa Rica, Dr. Daniel Nuñez, San Jose; Ecuador, Dr. Ricardo Cucalon, Guayquil; Guatamala, Dr. José Monteris, Guatamala Nueon; Hayti, Dr. D. Lamothe, Port au Prince; Spanish Honduras, Dr. George Bernhardt, Fegucigalpo; Mexico, Dr. Fornás Noriega, City of Mexico; Nicaragua, Dr. J. I. Urtecho, Grenada; Peru, Dr. J. Cassamira Ulloa, Lima; Salvador, Dr. David J. Guzman, San Salvador; Spanish West Indies, Dr. Juan Santos Fernandez, Havana; United States, Dr. A. Vander Veer, Albany, N. Y.; Uruguay, Dr. Jacinta De Leon, Montevideo; Venezuela, Dr. Elias Roderiguez, Carracas; Hiwaii, Paraguay, Santo Domingo, the Danish Dutch, and French West Indies are not yet organized. Nominations of local officers have been received from a majority of all the members of the International Executive Committee and a number of the lists have been confirmed by the committee on organization. These will be announced as rapidly as acceptances are received.

CHARLES A. L. REED,
Secretary-General.

Cincinnati, January 15, 1892.

METHODS OF MEDICAL INSTRUCTION.—Despite the great advances in American medical education during the last few years, it still remains a painful fact that the methods of teaching in our colleges—even the best of them—are unphilosophical, and the means of instruction lamentably inadequate. This is true as regards teaching both the art and the science of medicine.

A trade can scarcely be mentioned, in which young men are taught their work in so irregular a manner as they are taught the theory and practice of medicine.

Apprentices learning to be shoemakers, watchmakers and mechanics, do not spend a large portion of their time observing experienced workmen make shoes, watches or machinery. They do not spend hours each day, listening to good workmen "tell" them how to do certain kinds of work. They commence at the onset to perform the simplest manipulations with simple tools and appliances, and step by step labor, till hand and eye and judgment are educated in all that is required of master workmen.

So it should be with the student of medicine. There should be no unwise disproportion between listening and seeing, and *doing*, as always has been and still exists in our colleges.

Consider, for a moment, what every college should provide in no meager amount for each member of its classes. Practical work in the dissecting room, and in the chemical and in the physiological laboratories, should be greatly increased, and the customary didactic lectures in anatomy, physiology and chemistry greatly diminished.

The student should have great opportunities to secure practical skill in making incisions and in sewing their edges together; in chiseling bones; in bandaging and in applying various forms of apparatus; in reducing dislocations and in setting fractures; in ligating arteries; in palpation; in obstetric manipulations; in auscultation and percussion; in the use of the laryngoscope and ophthalmoscope; in the examination of the blood, urine and sputa; in writing prescriptions; in writing the history of cases, and in examining the gross appearances of the most important drugs. The student should also enjoy ample clinical instruction in both general surgery and medicine, and in the specialties.

All this practical work and observation leave comparatively little time for the old form of lecture. By this work the student will become as thoroughly skilled in the use of instruments and appliances as the "journeyman" at the end of his apprenticeship, or as the graduate of a good manual training school.

I would emphasize the importance of that much neglected means of mental discipline—the recitation from text-books. This presupposes special study, and tends to fix firmly in the mind of the student facts and principles. The recitation itself tends to improve facility in using technical terms, and serves as an examination as to the student's proficiency and progress.

It is true, a text-book is a lifeless teacher; a mere recitation is as lifeless as the text-book. With adequate practical work, however, the recitation and the preparation for it be-

come most potent factors in advancing the student in the acquisition of knowledge.

The simple problem is, how to secure the greatest good to the greatest number of students, by increasing the amount of individual, practical work, and by substituting, within proper limits, recitations from text-books for the old form of didactic lectures.

To thus place the instruction in our medical schools on the plane of our best manual training schools, requir s a large number of recitation rooms, of small and large laboratories, a very great supply of apparatus and materials, and above all, in addition to the usual corps of professors, a large number of instructors, similar in function to "drill masters" in the army. All this entails an expense so large that the tuition of students cannot meet it.

No medical college, as no literary college, academy or seminary, which provides adequate instruction and means of illustration, can be self-supporting.

Perfection in the methods of instruction in our medical colleges is probably impossible. It is well, however, to set high ideals.—(Abstract of remarks, made at the banquet of the Practitioners' Club, December 28, 1891.)—E. L. Holmes, M.D., Chicago.

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

First Annual Meeting of the American Electro-Therapeutic Association, held in Philadelphia, September 24, 25, and 26, 1891.

(*Continued from page 90.*)

Afternoon Session.—September 25, 1891.

President Massey.—In accordance with the resolution passed yesterday, I announce the committee on meters, namely: Drs. Wellington Adams, Hayd and Robinson.

Dr. Von Raitz, New York, read a paper on Peri-and Parametritis, giving a short sketch of the pathology of both affections, and the physiological and chemical actions of the constant current. He laid great stress upon such knowledge, as it does away with the empiric use of electricity and gives the profession a means by which to work scientifically and successfully.

He cited for each disease one case as a means of illustration. In both cases the positive pole was placed alternately over the hypogastrium and sacrum, and the negative in the vagina. But in the case of perimetritis he went in the womb, and finally, as he thought nature intended evacuation of the abscess, which was peculiarly situated in the utero-vesical space, per bladder—in the bladder. He used in the vagina 80 M. gradually and slowly increased from about 20 M.; in the womb he in the same way used 30 M. and in the bladder 20 M.

The sittings were with the negative in the vagina of about one-half hour, in the uterus and bladder of about 15 minutes duration. To prevent cystitis he used Merck's methyline blue 1½ gr. t. d., and felt assured this agent to be absolutely reliable.

Dr. Bigelow:—I do not want to anticipate in any way whatever the contents of the next paper, therefore I shall not go into the consideration of the pathological conditions for use of the constant current. This society has many important things presented to it this session. When I get back to the clinic next Monday I shall ask Dr. Massey whether we shall not apply the theory of Dr. Von Raitz.

I do not believe very much in parametritis. That which comes from septicæmia does exist, but pure cellulitis or parametritis is very, very rare, especially where there is no salpingitis with it. When you have a fluctuation in either fornix or a history of hectic, and where you can make out a circumscribed round swelling, I think you will find there is salpingo-ovaritis. I think perimetritis is quite frequent and the inter-menstrual pains simulate peritonitis.

In parametritis or salpingo-ovaritis our results have been very good. I have distinguished in my polar action as carefully as I should. We have had but two cases—one very bad and the other is doing very well at present.

In Apostoli's clinic I don't believe his results are as good as Dr. Goelet's. In the acute stage Prof. Apostoli uses the faradic current. He uses it as I would not dare to use it, and he uses the galvanic current as I would never use it. In the first place I had not the delicate touch which he has. On the theory propounded by Dr. Morton and that of Dr. Von Raitz, if it is retrograde metamorphosis, and pathological metabolism, there must be this differentiation in the poles of the current, and I believe that his theory is correct, but until it is backed by clinical evidence I must continue to call it a theory, and I shall await with considerable anxiety the reading of Dr. Morton's paper.

Dr. Goelet:—This subject of pelvic deposits which is the purpose of Dr. Von Raitz' paper—para-and peri-metritis—whichever you choose to call it, has been a question of considerable interest to me, and one with which I have had a good deal to do.

As Dr. Bigelow says, Prof. Apostoli's applications were not satisfactory and I did not follow them out. I did not apply them to the interior of the uterus so I made vaginal applications and it was just in these very conditions which led me to suggest or devise the carbon electrode to be covered with clay so that the vagina could be treated with electricity without cauterizing the surface; I mean effective doses, at least 50 milliampères, and I assure you that if this strength of current is used, and more particularly the positive pole three times a week, in a week or less you will have an irritated surface on the vagina with the ordinary electrode. You will have to stop the application with the carbon electrode simply covered with cotton, therefore, I suggest in addition as a protection that the electrode be dipped in the bicarbonate of soda solution, but I find that there is a much better protection from the use of egg albumen. I annoint the poles before introduction with the egg albumen, just dipped in the white of the egg. That facilitates the introduction, and you have a coat outside the cotton covering, and the local action of the pole takes place on the albumen instead of the mucous surface.

With regard to the polar effects and polar indications in these conditions, I have laid it down as a rule for myself to follow to use the positive pole in these sensitive conditions for the relief of pain; I do not mean pain to firm, hard pressure, but where the patient complains of pain in an ordinary examination. I am satisfied that absorption goes on from the positive as well as the negative and that as rapidly as possible.

I think Dr. Von Raitz has made a good point in shifting the poles to prevent setting up an irritation at the place of deposit. Changing the poles tends to prevent this also. But I have another reason for using the positive pole at first in preference to the negative, and that is that it relieves pain. That is one of the important points which we have to look to—it does not matter even if we have to work longer to cure the condition, we must relieve them of pain. An auxiliary to the treatment, I think, is the faradic current after the application of galvanism. It aids not only in making the patient more comfortable, but in promoting absorption, and I find that I am unable to use the negative pole in some sensitive conditions unless I use the positive afterwards,

and I have during the last year used the faradic current that way after the galvanic application, and I think I derived great benefit from it.

Dr. Mosher: Up to this time, I think, we have had nothing said about retroversion uteri. As that is one of the troubles in this region in which I first used electricity, and in which I have had some favorable results, I am very glad to say a word at this point about retroversion.

I had, in the beginning of my use of electricity, under my care two or three very troublesome cases with all those nervous symptoms you are all familiar with. I commenced to use the negative galvanic current with the ball electrode covered with cotton, and I found that I was unable to localize it. I could not carry the ball electrode high enough to reach the part of the uterus I wanted to, so one day I devised a covered copper wire, except the flattened or expanded end, curving it so that it went higher, and from that I went on and modified it, keeping the same idea in view, until I reached the electrode I now present you. I have found by its use that I have been able to carry the current to the posterior wall of the uterus high up, and that I do not need to touch the ovary, and by lowering the external end of the stem I could replace the uterus in many instances so that I not only get the vital action of the current upon the muscular fibres, but I believe that we get a very direct action on the muscular fibre of the round ligament, thereby helping to strengthen the forward supports of the uterus. I have in a great many cases seen the thickened wall of the posterior part of the uterus thin out in six weeks, after four or five applications, as if the walls had been partially removed, and I have thus been able to find fibroid tumors which could not be felt at all before the treatment, which, in the course of five or six treatments, have appeared at the surface, and the tissues have dropped away from them until they stood out as nodules upon the surface, and in this case the uterus has been lightened so materially that it ascended to its normal position after the electrical treatment. Electricity in many cases is aided by the use of a pad of cotton.

I have always used the negative pole covered with cotton. I have used a copper electrode, and that until very lately. I found some time ago that after using the cotton with a current of 30 to 50 milliampéres it was slightly colored green by the copper, and this coloring matter I found reaching to the vagina, and I have changed to the solid silver electrode, As I have used this but a few times, I do not know what the effect would be, but I suppose it would be negative, as the negative pole is used. I can recommend this, as I have used it for a long time and it has proved very satisfactory.

Dr. Van Raitz: Parametritis is any lesion in the cellular perimetric tissues, and that which unites the connective serous tissues to the vaginal wall and the broad ligaments that compose the connective in the anterior cul-de-sac between the bladder and the uterus; that is according to Virchow, and perimetritis he includes in that nothing surrounding the adnexæ, and that is why I have not referred to ovaritis or salpingitis, as this is simply an essay endeavoring to elucidate some of the points in the inflammations in the cellular tissues around the womb.

Dr. Morton: I should like to know what is the point Dr. Von Raitz wishes to make. If I understand it, there are certain chemical products at the electrodes formed *in situ* out of the tissues; as I understand it, these chemical products have a special effect upon the neighboring tissues out of which they are formed; that is, if the products are formed out of the inflammatory product they may have a beneficial or a bad effect upon those products. I think that this is a study in the right direction. I am very glad to see any one come forward and analyze the character of the current he is using, and I was very much interested in the chemical analysis in the products which may be made out of the tissues themselves. It is extremely interesting to know that we make nitric acid, chlorine, hydrogen, oxygen, etc., out of the tissues, and I hope in the future we will be more careful to distinguish the chemical products we are dealing with when we deal with them.

Dr. Nunn: I would like to mention in connection with the paper, as far as the chemical products are concerned, that there is a little thing in applying currents to the skin that may be old to others, but not to me. If you wet a piece of chamois skin and place it upon the skin, and upon this use your electrode, you will have the passage of electricity through it and not burn the skin, and this is particularly true of strong faradic currents. The action of the alkali and the acids is very well taken, and I can corroborate everything which has been said. The action of absorption of these remedies themselves is well known and understood as the electrolytic action of tissues; that we have the acids at one pole and the alkalies at the other. In all enlargements and new growths a careful analysis will show a considerable amount of earthy deposit, and the driving of an acid, say sulphuric acid, through these hard cacoplastic growths will soften them; that is, if you soften the deposition with acid it will be driven through, and by driving it through the growth will soften, and the softening of it may lead you to imagine that there is a deposit of matter in it which this enables you to dissolve.

Another point well taken by the doctor is, that judgment must be used. There must be that judgment. If you don't have that you don't have anything.

Electro-massage is not sufficiently attended to. A coarse current—a very coarse current—thrown into a particular part will set in motion the deeper muscles, and you will have an electric massage where you could not possibly get the advantage of ordinary massage. Use the deep, coarse coil electric current interrupted, or it can be done with the faradic battery, or the interrupted galvanic, or with the induced current.

A point comes up as to whether cervical laceration is parametritis, to which it has been attributed a great deal by Dr. Von Raitz. I have no doubt but that cervical laceration is partly a cause. I hesitate, almost, to say what I am going to say, but I will do it. It does not look very well for one to come here and take issue with great men and their specialties, but it has been said before, and years ago I said the same thing and put it in print, and now I repeat it. I do not think that all this sewing up of lacerations is necessary. If taken in time I do think that the prime subject in this paper would be to treat the laceration as a treatment of the para-metritis. What I want to get at is this, that this parametritis, and if you want to, perimetritis, may come from irritating the cervix and it is the irritated cervix we want to get at, and I believe that ordinary cases of laceration can be absolutely cured without an operation and that the parametritis and subsequent inflammatory conditions which come after would be prevented by such a treatment. Parametritis is caused very, very frequently by the cervix.

With Dr. Goelet I hardly agree. It is a dangerous practice where there is an inflammatory condition near the uterus to give intra-uterine treatment.

The action of faradism after galvanism is particularly beneficial not only there, but everywhere else where you have softened by the galvanic current. Very important afterwards is the stimulating effect of the faradic current and great benefit is derived in dispersing products.

Dr. Massey: I shall be able to add but little to the remarks so well made by all the speakers. I desire to say, however, that I do not think it is proper practice, from our present knowledge of the work, to attribute all our results to the

acids and alkalies at the poles. It should be remembered that these bodies do not appear except in the immediate neighborhood of the poles in any kind of work, and are therefore incapable of being the curative agent when the disease is on the other side of several layers of tissue. All these products of the action have to traverse the inter-polar space, it is true, and that they do certain work there is unquestionable. But the question arises, what is the difference between the work of the positive and negative poles at a distance of half an inch from the active pole with a strength of 50 milliampéres. I am not sure that there is any difference. I am, however, perfectly willing to learn and to give up the somewhat agnostic position that I take. I must say I have been working largely on a different theory,—on the theory that I was getting galvanic effects. That is, metamorphosis effects, contractile or vascular effects, and in order to avoid the deposit of these active chemical agents on the vaginal mucous membrane I have reversed the currents—that is I have turned on the current from 30 to 75 or 100 milliampéres, negative, and maintained it from one-half to one minute, and then reversed to the positive to the same amount, probably five or six times, and I have had excellent results from that treatment.

In my observations of para-and perimetritic products the loosening of the adhesions was due to the absorption of deposits rather than of adhesions. I am quite sure that it has been followed by very good results.

Among the practical details in the matter I recall the use of soap on my electrode surface. The vaginal electrode I now use largely is simply an electrode made of an arc-light carbon stick covered with rubber tubing. It is easily and cheaply made, is not acted upon to any serious extent by the current and absorbent cotton adheres readily to it. Wrap cotton around the point as with an applicator until you get a ball of proper size and take soap and twist it around upon it until you get it smooth, and it is as good as the metal electrode I formerly used. I use soap externally also, except where the patient complains of the irritation.

Dr. Von Raitz: I will not attempt to answer every question which has been asked because it would carry me too far, and really some of them have been explained in my paper.

As to Dr. Bigelow's remarks that parametritis is so very little seen now. I do not see how that is. Whether shock or traumatism or gonorrhea I do not care, I had already given an explanation of the meaning of peri and parametritis.

As to the differentiation of the poles, I do not know that it has been generally considered in America. If you want to increase the effect at the poles you should clean the surface to which application is to be made and at least neutralize it, and if you desire to increase the effects have a slightly alkaline solution at the negative and an acid at the positive. Sulphuric acid is the best because in the chemistry of the animal body that acid is already found.

As to the caution given by Dr. Goelet in going nto the uterus, of course everybody knows that.

I firmly believe that there was pus in the anterior cul-de-sac and I went into the uterus because I could not see how I was getting any effect from my other treatment, and I thought possibly that there was a mucous or submucous abscess. After trying intra-uterine treatment I found that it did not help and the pain increased and then I applied it in the bladder and this was necessary, as nature evidently intended to evacuate it that way and I believe that where nature shows us that she intends to evacuate in a certain direction we should aid her; therefore I went into the bladder and used 20 milliampéres at three sittings and then by the power of osmosis or tension or whatever it is helped to open the cavity, and there it was.

I am very thankful to Dr. Goelet for his suggestion of egg albumen. I never heard of it and I think it is the very best thing. I think soap has too much irritative effect, no matter how little you use, while egg albumen is very good.

The positive pole is sedative and relieves pain, and so I used it, and I put this to the catarrhal surface and afterwards the negative pole.

As to retroversion I did not speak of it before as I did not take it into consideration.

What the gentleman from Savannah has said about chemical action about the poles has been answered in my paper. Concerning massage, if you apply massage alone and not connected with electricity it is a different thing, but it is wrong to apply it with it as far as I can see and as far as others have claimed. Massage should always be applied before electricity.

What we call vital force, which is working three to four days after the electricity is stopped, is something we know nothing about.

As to the cervix and upper part of the vagina: Ulceration as the cause of peri or parametritis is probably correct; I do not enter into it.

As to Dr. Massey, he is very careful in attributing any healing effect to the action of both poles. I did exactly that. I say its therapeutic effect because the action of the positive pole is stimulating to the pyogenic membrane and in stimulating it, of course healing is a consequence. At the negative we have a stimulating effect. The electrolytic fluid as you get the more positive or negative, or *vice versa* there will be a neutral point.

What is the cause of healing? I claim it is osmosis. As electricity is not a fluid but a force; it is like my arm, I want to raise it; it is power going from the positive to the negative causing this change that works at the tissues at the same time and cures by the power of osmosis like ebullition. What more happens than this I don't know and I don't believe ever will be known. But this osmosis lasts from three to four days after treatment and it does good in healing.

Concerning the distance between both poles, I do not think that I have any right to make assertions, but I believe that the longer the distance between the poles the better, I do not think that they should be near—on theoretical grounds at least. Take a basin of rubber, with one side connected with the positive and the other with the negative pole, the current will go through the fluid contained therein, and you will have at the positive pole acid, and at the negative alkali. I know that 3 or 4 inches is too close for the poles. The action at the positive pole will disturb the action at the negative pole, and *vice versa;* there is not sufficient space between them, and this vital force does not have a chance to develop, and for this reason I do not believe in short circuits.

If the currents are used only for a very short time, they produce a stimulation and acceleration of the electrolytic effect, but I do not think that in reversing so often there is much gained.

Dr. W. J. Morton, of New York, read a paper entitled

METABOLIC POLARITY AND ELECTRO-THERAPEUTICS. (Abstract.)

1. The mutual relations of the two elements and the electrolyte of an artificial voltaic cell, are also the mutual relations of protoplasmic parts of living organisms during the process of living.

a. The oxidation of the positive plate of the cell (the zinc), corresponds to the destructive or katabolic chemical exchanges, producing waste products of urea, uric acid, creatinine, etc.

b. The hydrogen or other bases acting at the negative plate, correspond to the constructive or anabolic chemical exchanges.

c. The decomposition of the electrolyte corresponds to the decomposition of the animal electrolyte (blood, lymph and other fluids).

d. Oxygen and hydrogen are referred to above, not as the only reaction agents, but also as the types of their congeners, engaged in the complex chemical exchanges of living organisms.

2. During functional rest of a given living animal area, the anabolic, constructive action or storage of energy goes on and during functional activity the kalabolic, destructive action or releasing of energy goes on, and this is evidenced by their opposite polarities, positivity (in the internal circuit) being the sign of functional activity, and negativity, in the same circuit, the sign of functional rest.

3. What was a negative (anabolic) focus, during rest, becomes a positive focus (katabolic) during activity.

4. In addition to the storage material synthetized by the animal itself, and furnishing, during functional activity, an electro-positive plate, the principal electro-positive fuel or oxidizable tissue is furnished by the food assimilated by the animal, which food is the result of the anabolic, storage or constructive faculty of the plant.

5. The origin and initiation of an electric current, and consequent polarity, cannot be from the electro-negative plate of a voltaic cell, but the current arises from the initial chemical action at the electro-positive plate, and therefore the starting point of living chemical exchanges is in the electro-positive plate—that is to say, is kalabolic, oxidizing or destructive. Since an electric current is actual or released energy, it cannot arise at the negative plate, where energy is stored or rendered potential. The same is true of all the liberated energies.

As a consequence, all metabolism, all chemical exchanges in living animal organisms, are initially electro-positive, and if an anabolic, constructive or electro-negative focus is found by tests, it is not primary, but accidental, and the result of the action of a conductively associated katabolic or oxidizing positive plate.

6. It follows that morbid metabolism, constructive or destructive, is primarily electro-positive.

7. This invariable focal positivity provides an accurate guide to medical treatment by electricity. The morbid tissue focus may be regarded in the same light as an artificial voltaic couple.

8. Morbid metabolism may be divided into

a. Excessive chemical exchanges.

b. Deficient chemical exchanges.

In over-activity of the chemical exchanges.

a. An applied positive pole will increase the activity; *i. e.*, augment the disease.

b. An applied negative pole will diminish the activity; *i. e.*, palliate or cure.

In under-activity.

a. An applied positive pole will increase the activity; *i. e.*, palliate or cure.

b. An applied negative pole will diminish the activity; *i. e.*, augment the disease.

Two directions only are open for curative treatment. In over-activity, the negative pole palliates or cures. In under-activity, the positive pole palliates or cures.

9. If an electro-negative focus, here held to be secondary and incidental, is thought to be most desirable to be treated, the polarities indicated must be reversed.

This theory means to say that vital processes are electrolytic and electrosynthetic, plus a directive tendency which is a mystery. It does not mean to say that "electricity is life," but it means to say that the processes of living proceed according to electric laws, releasing by the electro-chemical action of oxidation, combustion or katabolism, heat, mechanical, electric and other energies, with the production of the waste products of excretion, urea, uric acid, creatinine, etc., and storing or rendering potential the same energies by the electro-chemical action of anabolism, with the production of formed chemical products essential, in the case of the animal, to its specialized existence (ferments, fats, glycogen, etc.).

It claims as a speculative postulate, that the fundamental starting point of both release and storage of energy, of the destruction and the construction of products, of katabolism and anabolism; of, in short, metabolism, is situated at protoplasmic foci consisting of protoplasm oxidized (or similarly attacked), and the oxidizing or attacking electrolyte, of protoplasmic voltaic couples—that the protoplasmic area attacked is therefore electro-positive, and that, as a consequence of this initial action at the electro-positive area or element, a secondary constructive, storing and anabolic chemical reaction is accomplished at a protoplasmic electro-negative area or element—in short, that anabolism is secondary to and dependent upon the initial katabolism.

It means to say that the animal continually dies that it may live—that its constructive metamorphosis is initially dependent upon its destructive and more concisely, as regards the constructive, that it is due to the chemical union of substances set free at the positive element by oxidation and allied actions, and uniting with other substances at the negative plate, antecedently oxidized or not—that, in short, katabolism and anabolism are interallied in an electro-chemical cycle composed of protoplasmic voltaic couples, where katabolism initiates that movement which results both in waste products and formed products, and which, when it ceases, is death of the part or of the whole.

It is this katabolic beginning, signalled by the focal positivity, that we may hope to influence by an applied external energy, and thus influence those life processes which underlie it. And since this initial katabolic centre is the source of heat, mechanical force, electric energy, and of all the other phenomena of life, normal as well as morbid, we are in a position to suggest, that this electric index of demonstrable and invariable electro-positive polarity is a guide which may enable the physician to thread the labyrinth of health and disease, and to apply a counter or an aiding energy in such a manner as to affect the normal or morbid phenomena, by affecting their initial and underlying chemico-biological processes. As regards electric energy, it is believed this may be accomplished in the manner outlined.

Dr. Von Raitz: I have nothing to add to what Dr. Morton has spoken. There is not a point that can be touched; everything is true, everything is perfectly explained. This is a very important paper, and I am glad to call attention to it. If everybody will follow this, he will see what he wants and understand it perfectly, and it will show him where he should apply one pole or the other and have success, and the application of the negative and positive pole has led to very great confusion among electro-therapeutists.

Dr. Goelet: It is a little too much to expect a gynecologist to discuss a paper by a neurologist, and especially a New York neurologist, as they do not think we know anything about it; but Dr. Morton is an exception to the rule, and his presence shows that we do know something of electricity. I move a vote of thanks for his very valuable paper. I think he has opened a grand field of thought which many of us will find of value. It opens the very point we are struggling for—the proper application of the poles. If we stop to reason and think what we will do before we begin, we would hesitate to do what we do now with impunity.

(The vote of thanks unanimously carried.)

Dr. Hayd: I must say, if Dr. Morton realized how anxious I was to get here to listen to his paper he would know the interest I took in it.

He has not only carried us through life, but through disease; he has shown us that life exists by chemical action, provided that this chemical action is in equilibrium, when waste is supplied as demand requires it. He has shown how disease develops certain elements, the result of chemical decomposition, and in this chemical decomposition it exerts its polarity, and by reason of this beautiful law he has developed, has taken us into elysium—a euthanasia, where he will continue to live forever, and where he will supply the necessary oxygen to continue life. I shall be pleased to have his paper to study it more carefully. I do not feel competent to talk about it until I have given it careful study.

Dr. Nunn: It is almost impossible to approach a discussion of a paper of this character without considerable feeling and trepidation. So thoroughly written, so thoroughly thought out; involving problems so deep concerning the life of man here and almost hereafter.

While, of course, I must thank the doctor for the very deep and very honest work he has done, still it does seem to me that we must not base all our theory on the chemical action. I think it would be misleading to do so. There must come in beyond that a great vital force, or the great unknown, as the doctor expresses it. We are treating the unknown with the unknown, and still beyond that comes the unknown, and yet beyond that the unknown.

We talk of electricity flippantly as a fluid or force; we theorise with it, but we come up against a stone wall every time. What is it? There is no doubt of it as to the chemical action, and that that is one of the great forces with which we have to deal, and in the treatment of certain diseases it is the one which we have to keep in view; but it is not the one we have to keep in view in all cases. There is that vast field of statistic electricity which has little or no chemical action at all, and as the doctor is an expert in that he can no doubt tell us all about it.

It would be impossible to go into life forces; but I think magnetism is nearer a life force than electricity is. Now, the question as to what is electricity, and what is the chemical change going on, is one we all have thought about to a great extent, and it is a very puzzling thing to know what it is which produces the certain chemical changes which we think are chemical. To illustrate my meaning is very difficult. What is taste? We do not know. A certain substance taken in the mouth gives a taste, but what, we do not know, and yet it is not a chemical effect.

Speaking of the electric polarity of the body, there are of course great currents going on in the body, and that would suggest a question as to whether the conditions that we find in various portions of the body are always identical electrically; thus for instance, the right arm and shoulder are relatively positive to the left arm of the body; it is so stated. If one is electro-positive, the other electro-negative, it may or may not be that new growths may be in the positive condition, it may be as in the static battery or positive to the earth. That has been proven, I think. Keeping so closely to the chemical theory makes us lose sight of another great fact that every molecule of the body is a rational being to a certain extent. I believe that every single blood corpuscle is in itself an independent animal and being as far it goes. I know of no other way in which you can explain the fact that the blood corpuscle takes up its oxygen and nutrition and deposits it in the tissues and goes away again. I am unable to understand this selection except by that.

Clinically I have been in the habit of using this rule and I have found it a good one to follow: Wherever there is tenderness upon pressure, and inflammation, I use the positive, and wherever there is a swelling, as in tumors and chronic diseases, there I use the negative. I direct the vital forces over the seat of inflammation and toward the distant point; wherever I want absorption I direc t the current towards that and increase with the action.

Dr. Robinson: When Dr. Morton finished his paper I made up my mind not to say anything about it. This paper is the result of months of careful and profound thought. It is almost impossible to discuss it. It is a remarkable production, full of thought and research.

To emphasize a point, I go back two or three years ago when I was in Vienna, which place I consider the greatest electro-therapeutic centre in Europe, presided over by Benedict. There are many more patients treated there than in any other clinic, and the kind of work done there by himself and assistants is wonderful. After his thirty years of study he has come to the conclusion that polar action is null, and I have imbibed that theory. I lay no stress on the poles at all, but I think differently to-day, and this is a most interesting point that Dr. Morton has brought forward. It is certainly a most profound and logical theory, and the proof we have had, I think, is good evidence and we should accept the polarity treatment.

Dr. Von Raitz: So far as Dr. Benedict, of Vienna, is concerned, I know he claims that, but it has been proved by putting the positive to excessive growths it makes them worse, and by applying the negative it makes them better. No matter who said anything, this is a fact, and this is a new law, and Dr. Morton will be regarded as making a new epoch.

Dr. Walling: It has been my practice to use the positive pole in inflammatory conditions and considering the chemical laws that like poles repel, and in disease where there are lower vitalities and a lack of nutrition, I have considered it a negative condition and have used the negative pole as a stimulation.

Dr. Massey: I am quite of the opinion that the paper is not to be discussed by us at present. It is founded upon well-digested thought, but after the great fiasco in Berlin a year or more ago, we should be slow in accepting new doctrine. We want practical proof. We want him to give us specific instances where certain diseases were positive and others negative. Even after we get those facts we want to disabuse our minds of the names negative and positive now applied to the poles. In 1885 I read a paper before the American Neurological Association in which I took issue in regard to our nomenclature and thought that the names of the poles should be reversed. The vast weight of evidence given was derived from static electricity and from the action and observation of currents in vacuum, particularly the Crooke's tubes, and not a little of it from the normal formula of polar action of muscle. All of these went to show that the present theory of the direction of the current was incorrect. But I do not wish to say that if I were correct that it would involve the statement here made by Dr. Morton. If the names are wrong the facts are there, and facts stand.

In regard to the use of the negative pole: it is true that I have advocated largely the use of the negative in vaginal applications, and consider it more efficient. I understand that this is Apostoli's practice also. I have not, however, founded my practice upon any theory of this sort, but upon observations that the positive pole causes an eschar if concentrated when bare. Now that I cover my vaginal electrode with soaped absorbent cotton, I am using the positive pole more often; but even then I have had some practical difficulties to deal with which cause me to change the poles on account of the acid accumulation in the vagina with its cauterant action.

Whatever result may come from this paper, it should be remembered that it deals only with the chemical side of disease, and makes no allusion to those other diseased condi-

tions which must so often be combated at the same time—microbic germs. Whatever the shortcomings of the paper, it applies beautifully to disease, and has elements of epoch-making thought.

Dr. Morton: I thank you warmly for the very kind and respectful consideration you have given to my thesis here expressed. I will say that it has been stumbling around in my mind for six months, and I did a great deal of work in thinking the paper out, and I am very glad that you have been thinking so much on the subject and have been so kind as to think there is merit in it. I had expected more criticism.

(To be continued.)

NECROLOGY.

W. H. Long, M.D.

At a joint meeting of the Faculty and students of the Michigan College of Medicine and Surgery, the following resolutions were unanimously adopted, relative to the death of W. H. Long, M.D., Emeritus Professor of Military Surgery.

WHEREAS, We, the Faculty and students of the Michican College af Medicine and Surgery, have learned with deepest regret of the death of Dr. W. H. Long and.

WHEREAS, Dr. Long was a member of the Faculty of this College, and that, in a great measure to his untiring efforts the college owes its existence and growth. Be it

Resolved, That in the death of Dr. Long, the Faculty has lost a sterling friend, a wise counsellor, and an enthusiastic colleague; the students, one of the wisest of teachers, both practical and learned; one whose influence extended beyond the class-room, into the warp and woof of student life.

Resolved further, That the Medical profession has lost one of its brightest ornaments; the country one of her strongest patriots; and the poor and the sick a helper and a sympathetic friend. While a resident of this city we know that his ear was always open to the cry of the suffering, and his skilful hands were constantly relieving the pain of the unfortunate.

Resolved, further, That these resolutions be spread upon the records of this college, that they be published in the JOURNAL of the American Medical Association, and that a copy be sent to the mourning children, with the assurance of our deepest sympathy.

Committee, { HAL. C. WYMAN, M.D., DAYTON PARKER, M.D., W. R. SEURR, M.D., M. V. MEDDAUGH, CARYL B. STORRS.

MISCELLANY.

OFFICIAL RECOGNITION OF MERITORIOUS SERVICE.—The Major-General of the Army recently reported a list of officers and others who distinguished themselves by meritorious conduct in the year 1890, and during the late campaign against the hostiles in South Dakota. The names of the following medical men are upon this roll of honor:

Surgeon and Lieutenant-Colonel Dallas Bache, Surgeon and Major J. V. R. Hoff, and Assistant Surgeons and Captains H. P. Birmingham and W. L. Kneedler.

[The following poem was read at the dedication of the Camden City (N. J.) Dispensary, on January 9th, by Hon. Henry C. Bonsell, editor of the *Camden Post*.]

In holy shrine and temple fane
We here assemble once again
To herald on the trump of fame
The Doctors.

As here the Medicos we meet,
And learn new wisdom at the feet
Of those whom we are proud to meet,
The Doctors.

Magicians who our ills assuage,
Who take our pulse and even gauge
Our temperature when fevers rage.
The Doctors.

Who mitigate our many woes,
And patch us up from scalp to toes
With porus plasters 'stead of clothes,
The Doctors.

Who fill our craws with coated pills,
And nasty draughts the de'il distills,
And for it send us swinging bills,
The Doctors.

For which they oft our censure earn
As with indignant spleen we burn,
But to them we are forced to turn,
The Doctors.

Who like the fishes swim in schools,
Scoffing at the paltry fools
Who disregard conventional rules.
The Doctors.

And to this day they can't agree
On tweedle-dum and tweedle-dee,
But all unite upon the—fee,
The Doctors.

Yet when we feel we're getting sick,
We send for M.D.'s p. d. quick,
According them the winning trick,
The Doctors.

For when we're in the grip's fell clutch
We're not so proud—not overmuch,
But reach out for the only crutch,
The Doctors.

So, when dread anguish wrings the brow,
Without reserve we all allow,
"A ministering angel thou,"
The Doctor.

And in the hour of sore distress,
The rich and poor alike express
Their fervent thanks, and say "God bless
The Doctor."

For no respecter of persons he,
Nor purse, nor place, as all agree,
He fighteth for the victory,
This Doctor.

The victory o'er disease and death,
This of his nostrils is the breath,
"This is my mission," answereth
The Doctor.

And many dollars doth he lose,
And many men do him abuse,
Then let's commend to tuneful muse
This Doctor.

The muse recounteth knightly skill,
Then let the muse this truth instill
And credit pay, and pay the bill
Of the indispensable Doctor.

A CURIOUS epidemic has been decimating the aged inmates of British workhouses. It appears as a general eczema, runs a definite course, and proves fatal in about one-eighth of the cases. It is not certain as yet that the disease is contagious, though the limitation to several neighboring workhouses renders this probable. But the true explanation may be found in the quality of the food.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from January 9, 1892, to January 19, 1892.

Capt. Walter W. R. Fisher, Asst. Surgeon U. S. A., is granted leave of absence for one month.

Capt. Marshall W. Wood, Asst. Surgeon U. S. A., now on leave of absence, will report to the commanding officer, Ft. Columbus, N. Y., for temporary duty at that post during the absence of Capt. W. W. R. Fisher, Asst. Surgeon.

Major Julius H. Patzki, Surgeon, having been found by army retiring board incapacitated for active service, on account of disability incident to the service, is, by direction of the President, retired from active service, to take effect January 9, 1892, under provisions of section 1251, Revised Statutes.

Capt. Henry S. Kilbourne, Asst. Surgeon U. S. A., is relieved from duty at Willet's Point, N. Y., and will report in person to the Superintendent U. S. Military Academy, West Point, N. Y., for duty at that station, relieving Capt. W. Fitzhugh Carter, Asst. Surgeon U. S. A. Capt. Carter, upon being relieved by Capt. Kilbourne, will report in person to the commanding officer, Willet's Point, N. Y., for duty at that station.

Official List of Changes in the Medical Corps of the U. S. Navy, for the Week Ending January 16, 1892.

Surgeon J. Parker, ordered to the U. S. S. "Charleston."

Medical Inspector C. H. White, detached from U. S. S. "Charleston," and ordered home.

Asst. Surgeon George A. Lung, ordered to examination for promotion.

Asst. Surgeon Patrick H. Bryant, ordered to examination for promotion.

Asst. Surgeon Luther L. von Wedekind, ordered to examination for promotion.